PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

TRADE MARK

Announcement

The Lagerloef Trading Co., Inc., of 52 Vanderbilt Avenue, New York City, for many years has had the honor of being the American representative of the Finnish Cellulose Association and the Finnish Wood Pulp Union, both of Helsingfors, Finland. The corporation points with considerable pride to its record of accomplishment on behalf of the Finnish associations from the days of inconsequential Finnish pulp tonnage imports into the United States to the present definitely large and well-established market for Finnish pulps.

The time has now arrived when the Lagerloef Trading Co., Inc., must announce that it will cease to represent the Finnish Cellulose Association as of December 1, 1937, save for the completion of certain contracts.

The Lagerloef Trading Co., Inc., also announces that it will cease to represent the Finnish Wood Pulp Union as of February 1, 1938, save also for the completion of certain contracts.

The Lagerloef Trading Co., Inc., trusts that the kindly and hearty support which it has been accorded by the American paper and pulp industries will be extended to the Finnish Cellulose Association and Finnish Wood Pulp Union.

It is the intention and aim of the Lagerloef Trading Co., Inc., to continue its efforts in the field of pulp distribution in the United States. The destinies of the corporation will continue to be guided, as heretofore, by its president, Mr. Hans Lagerloef.

Mr. Hans Lagerloef wishes to express his deepest appreciations of the past courtesies, kindnesses and cooperation which have been accorded him personally by the American paper and pulp industries and it is his hope that this same sympathetic cooperation and generous support will continue to afford him an inspiration for his further efforts.

Lagerloef Trading Co., Inc.

Hans Lagerloef, President

New York,
November, 1937

NOV. 11 1937

Vol. CV
No. 20

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DOWNINGTOWN

The long-familiar open gears, tight and loose pulleys and belt drive of the old reliable plunger pump are now replaced by a totally enclosed, self-lubricating speed reducer with built-in motor. This saves power, minimizes noise and reduces upkeep costs, and since the pump is a complete, self-contained unit, it can be set up anywhere. Cranks are now mounted on a double, extended slow speed shaft. Select a size in Duplex or Triplex Types which is large enough to do your work at 25 revs. or less and you can feel assured of a trouble-free pump, of which you can be proud. The Downingtown Mfg. Co., Downingtown, Pa.

DIRECT MOTOR DRIVEN • ALL SIZES AND CAPACITIES

Entered as second class matter at the Post Office at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial office: 15 W. 47th St., New York, N. Y. Domestic subscription U. S. and possessions, $4.00 per year.

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THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

Executive and Editorial Offices: 15 West 47th Street, N. Y. C.
Western Rep.—H. K. Vinton, 123 W. Madison St., Chicago, Ill.

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The PAPER TRADE JOURNAL is indexed in Industrial Arts Index

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WHEN DEMAND DRIVES → MILLS MUST PRODUCE

Today, with orders crowding paper-mill manufacturing schedules, it is important that all production equipment be maintained at maximum efficiency. Costly, time-consuming delays must be wiped out ... frequent replacements eliminated ... continuous operation assured. In many paper-mill installations INSUROK gears, bearings and other important parts are proving their superior performance, their rugged dependability and freedom from tie-ups and repairs.

INSUROK

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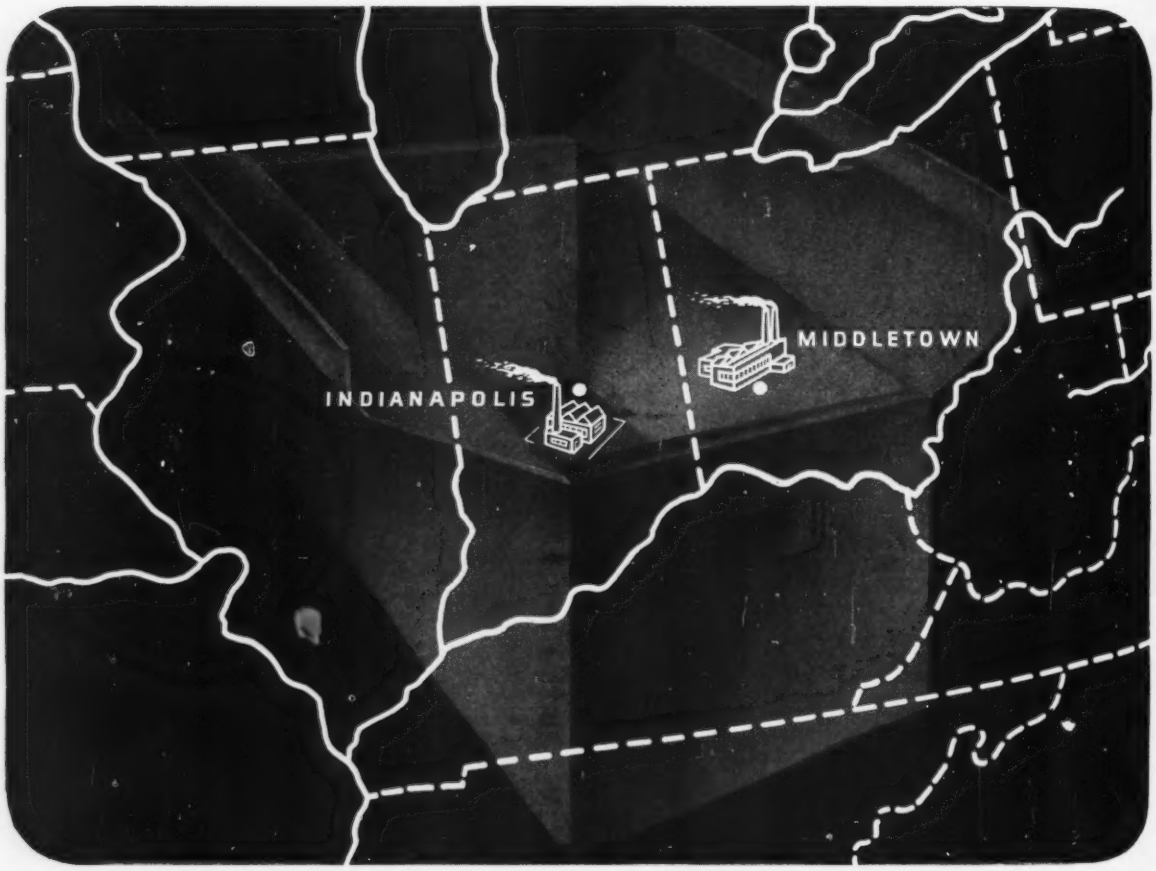
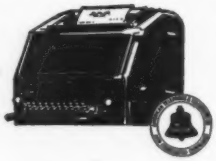


MAKING boxes involves making quick contact between headquarters and factory for the Inland Container Corporation.

This presented a problem. Headquarters at Indianapolis did not always know what orders Middletown had on hand until a whole mail day after they were received. Production was irregular and often delayed, pending word on credit or special instructions from Indianapolis.

Company officials decided to do something about it, and asked Bell System representatives to help them. Together they made a thorough analysis of existing communication methods, and found a need for Private Line Teletypewriter Service. It was installed at once.



These efficiencies resulted: (1) Headquarters now receives all orders and has full control over them until transmittal to Middletown. (2) Final instructions are flashed *in typewritten form*, providing accurate carbon records for billing, shipping, and other departments. (3) Production is better balanced. (4) Customer service is quicker.

Perhaps a get-together with Bell System representatives will prove equally profitable within your business, whether it's large or small. It costs nothing to find out. Just call your local telephone office.

PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

PAPER

SIXTY-SIXTH YEAR

PULP

Established Feb. 17, 1899
Consolidated Nov. 16, 1899
with Paper Trade Journal.

Vol. CV, No. 20 Thursday, November 11, 1937

Established Sept. 21, 1910
Consolidated Feb. 19, 1925
with Paper Trade Journal.

Publishers May Curtail Use of Newsprint

Price of $50 Per Ton May Prompt American Consumers to Attempt to Force Newsprint Mills to Meet Great Northern's Price of $48—President Roosevelt's Proposed Investigation of Prices — Other Trade News.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 8, 1937—While newsprint operators here are naturally interested in the campaign of American publishers to force newsprint mills to meet Great Northern's price of $48 per ton for the first half of 1938, there is no indication whatever that the Canadian mills which have already announced a price of $50 per ton will recede from their position. Meanwhile Canadian publishers appear to accept the $50 price as meritable, and most of them have decided upon an increase in the subscription prices of their newspaper to meet the extra cost. In addition to that a number of papers are completing plans to economize in the use of newsprint by discontinuing certain features and otherwise.

President Roosevelt's Proposed Investigation

Meanwhile there is some discussion of the suggestion of President Roosevelt's reported plans for investigation of the price of newsprint. On this subject the Financial Times of Montreal says: "Mr. Roosevelt possibly had two strings to his bow when he proposed to the Justice Department an inquiry into the price of newsprint, in line with his long-threatened investigation as to the effect of monopolies on price fixing in consumer goods. While such an inquiry would at first glance appear to be a political move to appease American publishers, the situation in the industry is such that the outcome could be expected to clearly establish that price increases have not been abnormal, that quotations announced or even higher prices are justified, that the advance from the abnormally low level of the depression has been moderate, and that, even after the deflation of the capitalization of leading producers, only modest returns are in prospect for the investors who have financed the whole industry.

"If Mr. Roosevelt could at one and the same time satisfy the publishers, justify his price-raising policy and convince the public that, as with newsprint so with other commodities, price advances have not entailed excessive profits, then a newsprint inquiry might well prove to be just another of those clever political moves which so many regard as adding lustre to his administration."

$6,000,000 Sulphite Mill for Newfoundland

A Canadian Press dispatch from St. John's, Newfoundland, says: "The Newfoundland Government is negotiating with Bowater-Lloyds Company, of England, for the construction of a $6,000,000 sulphite pulp mill in the Gander Lake district, R. W. Ewbank, commissioner for natural resources in the island government, announces.

The mill would have a capacity of 226 tons daily, Ewbank said. Three hundred workers would find employment in the mill, with an additional 2,000 loggers in the woods. The plant would be ready for operation by 1940.

"The Bowater Company would also be granted the right to export raw pulpwood equal to three-quarters of the capacity of the mill, under an existing agreement, they can export 120,000 cords of raw pulp.

"If agreed to by both sides, the plan would also provide for operations in Labrador where 3,000 square miles of timber land would be leased."

Offers for Chicoutimi Mill

Premier Duplessis, in an interview in Montreal, said the Provincial Government had received from several interested parties offers to take over and operate the pulp mill of the Premier Pulp and Paper Corporation at Chicoutimi, and that it was likely a deal would be closed in the near future. The mill, which has been idle for some years, is equipped with four digesters, and four wet and one dry machines. It has capacity for the production of 300,000 lbs. per day of strong sulphite fibre.

International Purchases Mill Output

The news is published here that International Paper Company has purchased the entire 40,000-ton newsprint output of the Brompton mill for a period of five years and that arrangements have also been made by the same company to buy the surplus tonnage of the Booth mill, in Ottawa, which has a total of about 25,000 tons. The disposal of their entire output by these two mills, it is stated, eliminates the maintenance of expensive selling organizations and, at the same time, concentrates the Canadian production into fewer hands.

Commission Lowers Wisconsin Freight Rates

Public Service Body Reduces Tariff On Pulp Wood Approximately 50 Per Cent — Unemployment Compensation Law Upheld — Kimberly-Clark Employes Forming New Union—Dr. Davis to Address TAPPI.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., Nov. 8, 1937—Reductions of approximately fifty per cent in joint line freight rates on pulp wood hauled between Wisconsin points were affirmed last week by the Wisconsin Public Service Commission, after a long fight by 26 paper mills affected. They will become effective unless a rehearing requested by the railroads is granted.

The present charge of $7.50 per car for transfer from one railroad to another has been reduced to $3.75 per car of 70,000 pounds. The mills proposed a reduction to $1.50, but the commission held this would not cover railroad costs.

"Many changes have taken place in pulp wood movement during the past 25 years," the commission said. "Unquestionably the haul has been lengthened and paper mills are required to go further afield and frequently into territory served by other railroads in order to secure a sufficient amount of pulpwood to meet their needs."

It was pointed out that the percentage of pulp wood moving in joint line traffic has been steadily increasing, due principally to the fact that pulp wood cannot be secured in sufficient quantities from territories served by a single railroad.

Wisconsin mills contended that because of a shortage of nearby pulp wood they could not compete at existing rates with competition from the Pacific coast and the south.

Unemployment Compensation Law Upheld

Validity of Wisconsin's unemployment compensation law has been upheld by Judge Alvin C. Reis, of the circuit court of Dane County, Wisconsin, in its first test case. A challenge of the act's unconstitutionality was made by the Cary Manufacturing Company of Waupaca, Wis., which contended that by virtue of recent decisions by the United States Supreme Court, the National Labor Relations Act has been sustained, and the company's operations must be considered in interstate commerce and consequently the state has no power to interfere in its operations through an unemployment compensation law of its own making.

Wisconsin's law was enacted in 1931, the first of its kind in the United States, and its actual operation began 15 months ago when an engraver at Madison, Wis., received a check for $15 as a full week's unemployment benefit. Reserve funds collected now total more than $22,000,000 from 5000 individual employers.

Fox River Co. Recognizes Union

The International Brotherhood of Papermakers, an affiliate of the American Federation of Labor, has been recognized as the sole bargaining agent of employes of the Fox River Paper Company, Appleton, Wis. Company officials, headed by W. C. Wing, president, held a conference recently with employee representatives of the local union and James D. Creed, representative of the international union, culminating in recognition of the union under the new labor regulations.

Kimberly-Clark Employes Organize New Union

Employes of the Kimberly-Clark Corporation's mill at Kimberly, Wis., have tentatively organized paper Mill Workers Union, Local No. 1, an independent union to replace one previously formed under technical violation of the Wagner Labor Relations Act. Several meetings have been held by the employees, and expressions showed that 90 per cent of the workers prefer an independent union. American Federation of Labor representatives have held meetings in the village but found only a few workers who were interested in affiliation. Harold Fird, who headed the previous union, has been elected temporary president. Otto Hannemann is vice-president, Cornelius Kokke, secretary, and Bernard Spaay, treasurer. Further organization steps will be taken at later meetings. The Kimberly union will be independent from employee units of other Kimberly-Clark mills, it was announced.

Attend Safety Meeting

Employes of the Rhinelander Paper Company and the Daniels Manufacturing Company were among the 300 persons who attended a safety meeting at Rhinelander, Wis., at which D. D. Fennell, president of the National Safety Council, was the speaker. He told his hearers the "sob type of safety appeal" has been overworked, and that safety should be attacked from an engineering point of view.

Lookout Towers to Safeguard Forests

Forest fire prevention in Wisconsin has been aided by the erection of 91 lookout towers by CCC workers. Thirty-six lookout houses also have been built. Fire detection has thus been facilitated, and with the added precautions such as clearing away slashings and cutting roads for firebreaks, the annual losses of pulp wood and other products have been cut to a minimum.

45 Years Without an Accident

A unique record has been achieved by Joseph Van Roy, who has been a paper loader and car bracer for the Kimberly-Clark Corporation at its Kimberly, Wis. mill. He has worked for 45 years at these two jobs, and despite their hazards has never suffered a lost-time accident. He has lost only four days because of sickness, one day in 1932 and three days in 1933.

Dr. Davis to Address Lakes States TAPPI

Dr. M. N. Davis of the Kimberly-Clark Corporation, Neenah, Wis., will address the Lake States section of the Technical Association of the Pulp and Paper Industry at its monthly dinner November 9 at Conway hotel, Appleton, Wis. His subject will be, "Paper Making and Pulp Uses as Viewed by a Physicist."

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for felt Wash-ups

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YOU CAN MAKE MORE MONEY WITH NEW BIRD MACHINERY

Advises U.S.A. Owners to Fabricate In Canada

Minister of Canada's Lands and Forests Predicts U. S. A. Owners of Pulp Mills in Thunder Bay Area Will See Advantages of Fabricating In Canada — Pulpwood Season Active — Boxer Co. to Erect Building.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., November 8, 1937—Hon. Peter Heenan, Ontario Minister of Lands and Forests, in an address at Port Arthur, last week, predicted that United States owners of pulp mills that are being established in the Thunder Bay district will soon see "the wisdom of fabricating all the pulpwood into the finished product in this country." Mr. Heenan said owners gradually would transfer industrial operations from the U. S. plants "to the proper location adjacent to their raw material supply." The new mills would represent an annual expenditure of more than $34,000,000 in the district, the Minister told Port Arthur Chamber of Commerce at a banquet tendered him. The pulpwood cut of 1,150,000 cords a year would be less than the annual average growth of pulpwood. Mr. Heenan added that he believed within a few years new industries would be established in the Thunder Bay area to utilize the unlimited wealth of inferior wood unsuited to present pulp manufacturing methods.

Pulpwood Active This Year

G. E. Andrews, of Massey, Ont., dealer in pulpwood, railway ties, etc., reports a very active season. He handled over 12,000 cords of pulpwood, rough and peeled, during the last few months and paid to settlers and jobbers on Crown lands in the immediate vicinity of Massey over $60,000, which, he reports, kept a number of men off relief. Prices are better this year and Mr. Andrews expects to handle between 12,000 and 15,000 cords. He has over 6,000 cords peeled now, and again is taking out more for the Abitibi Power & Paper Co.

Lake Sulphite Mill Nears Completion

Mill construction of the Lake Sulphite Co. at Red Rock, Ont., is fast nearing completion. Structural steel erection and concrete pouring operations are nearly finished, and the roofing on all the buildings is far advanced. The installation of machinery and equipment has begun, and within another week all the buildings will have been closed in against the weather, and the steam heat will have been turned on to permit the completion of the work during the winter months. The dredging of the harbor has also been completed. Both woods operations and mill erection are proceeding according to program, which calls for the initiation of operations in March next.

Boxer Co. to Erect New Building

The Reg. N. Boxer Company, manufacturers of wall papers, have let a contract for a new building for warehouse purposes. The building will be one story, 350 feet long, 20 feet wide and will adjoin their plant on the north side of Birmingham street, New Toronto.

Elected to Provincial Board

Arthur P. Jewett, of the Provincial Paper Mills, Toronto, has been elected to the board of directors of Don Valley Paper Mills, Ltd., Toronto.

Don Valley Installs New Calender Stack

The Don Valley Paper Mills, Toronto, has just installed a new nine-roll calender stack, manufactured by the Dominion Engineering Co., Montreal. Two rolls water-cooled, and it is equipped with Warren doctors and ratchet lift.

Batchelor Goes to Papermakers' Chemical Corp.

T. G. Batchelor has been appointed resident manager of the Freeman, Ont., plant of Papermakers' Chemical Corp. Ltd. He succeeds the late J. Hibbs and will be manager of manufacturing and sales of resin size. Mr. Batchelor has had a wide experience in the sizing of paper and boards.

Industrial Institute Issues Magazine

The Institute of Industrial Arts, Gardenvale, Que., which, as one of its activities, has been conducting the correspondence courses sponsored by the pulp and paper industry of Canada and the United States, has undertaken the publication of a monthly magazine, "The Instructor." The magazine will pay special attention to the Credit Union movement in industry.

Tax Decreases Employment

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 10, 1937—The National Association of Manufacturers has made a poll of its membership in connection with the surplus profits tax and it claims that the answers show that employment in manufacturing industries would be higher if it were not for this tax.

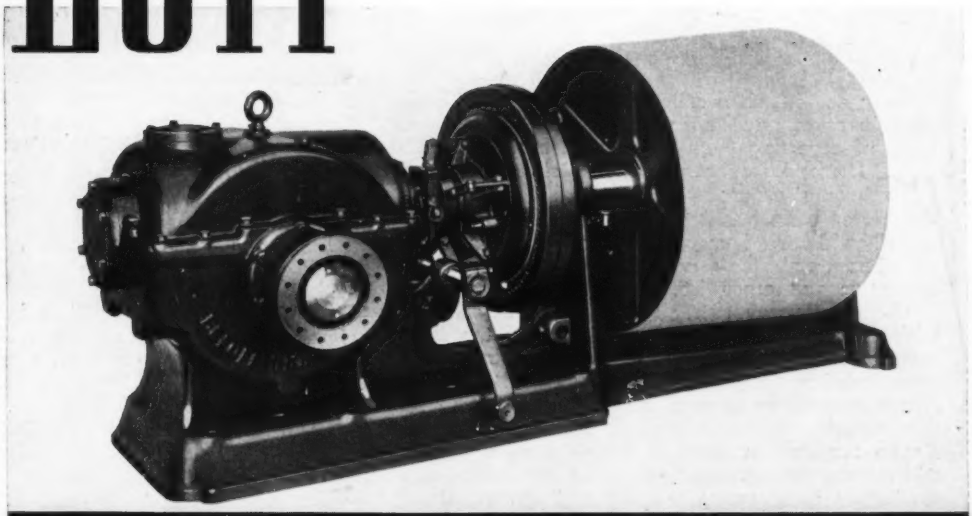
Answers were received to the questionnaire of the Association which indicated this trend. A paper company, whose name is not mentioned by the association replied that "our company is now delaying final decision on an expansion program of several hundred thousand dollars, until the new problems brought up by the undistributed earnings tax can be met successfully." Answers from other industrial companies are much along this same line.

To Review Sale of Northern Mills Power

APPLETON, Wis., November 8, 1937—A hearing has been set by the Wisconsin Public Service Commission for November 19 at Madison, Wis., to review details of the proposed sale of the Northern Paper Mills hydro-electric plants on the Menominee River near Amberg, Wis., to the Wisconsin Michigan Power Company. The two plants have been purchased for $2,350,000.

Under the Wisconsin law, no utility may acquire water power property without the approval of the commission. Approval of the Michigan Utilities Commission also must be given, since the Menominee River is an interstate boundary.

BELOIT



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Chicago Less Active As Demand Declines

Trade Reports Conditions As Somewhat Slow — Paper Industry Active In Annual Community Chest Drive--Swigart Paper Co. Announces New Service — Midland to Distribute Kleerfect-Hyfect Line — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 8, 1937—The Chicago paper market gave no particular indications this week of departing from the general business situation. Demand was comparatively slow and good sized buying orders were reported as fewer in number as basic industries seemingly determined to curtail widespread merchandising development at the present time for a number of reasons—political, legislative and otherwise.

The fine paper market, all in all, was little changed with demand spotty and the back log of the mills reported as having now shrunk to the point where current orders are most easily supplied. Books and covers showed no change, with demand slowed up in sympathy with the general business recession. Krafts remained unchanged though local observers still commented upon the effects of increased kraft production now coming through and speculated on the outcome. The board market was comparatively dull. Waste papers were extremely quiet with little demand in sight and plenty of raw materials available despite the peddlers strike which should have had a stimulating effect on market strength.

Participate in Chest Drive

The Chicago paper industry is again actively participating in the annual drive for community chest funds for the city of Chicago. With a goal of $30,000, the industry is now in its fourth week of effort to reach the top with the outlook, according to reports, extremely promising. George Cobean, vice president of the Butler Paper Company, is chairman of the Paper Division with R. S. Bull, head executive of Bradner Smith & Company as chairman of the advisory committee which is composed of the following men: Ben Babbitt, Brown Company; Earl Beier, Beier & Company; Jack Burrus, Albemarle Paper Company and regional vice president of the Salesmens Association of the Paper Industry; Noble Gillett, Chicago Paper Company; J. F. Lee, Carlton Envelope Company; A. F. Meisterheim and J. P. Norton, J. P. Norton & Sons, Incorporated.

The team captains, all well known in the local paper industry, include the following men: R. W. Banks, Albemarle Paper Company; J. T. Daily, Wrenn Paper Company; J. R. Diggs, Mosinee Paper Mills; C. O. Eggerly, American Paper Goods; L. A. Ellis, Northwest Paper Company; H. C. Engel, Central Paper Company; A. Epstein, Continental Paper Grading Corporation; A. N. Forsythe, Frasier Industries; Harold Leahy, LaSalle Paper Company; P. F. Meisterheim; E. A. Melchert, Chicago Paper Company; G. G. Olson, American Writing Paper Company; J. H. Radson, Radson-Rice; H. W. Rhinehard, Brown Company; E. Rohrer, Bradner Smith & Company; F. A. Roll, Allied Paper Mills; Ed Schmidt, Parker, Thomas & Tucker; Robert Schulman, Levine Brothers; William Shapland, Fred Renz Paper Company; William Shea, Bradner Smith & Company; Harry Todd, Midland Paper Company; A. B. Tucker, Parker, Thomas & Tucker; Hamilton Vose, Berkshire Paper Company and William White of the James White Paper Company.

Paper in Export Packing

Don L. Quinn of the Don L. Quinn Company will speak on the use of fiber boxes in export packing at the next dinner meeting of the Export Managers' Club of Chicago to be held in the Great Northern Hotel, Chicago, on November 9. The entire discussion will be given over to a forum on export packing with R. Bruce Miller of the Insurance Company of North America and J. B. Frear of the Signode Steel Strapping Company as other speakers, the former as an authority on the subject in general and the latter discussing the use of wooden boxes for export shipment.

Salesmens Assn. Holds Special Meeting

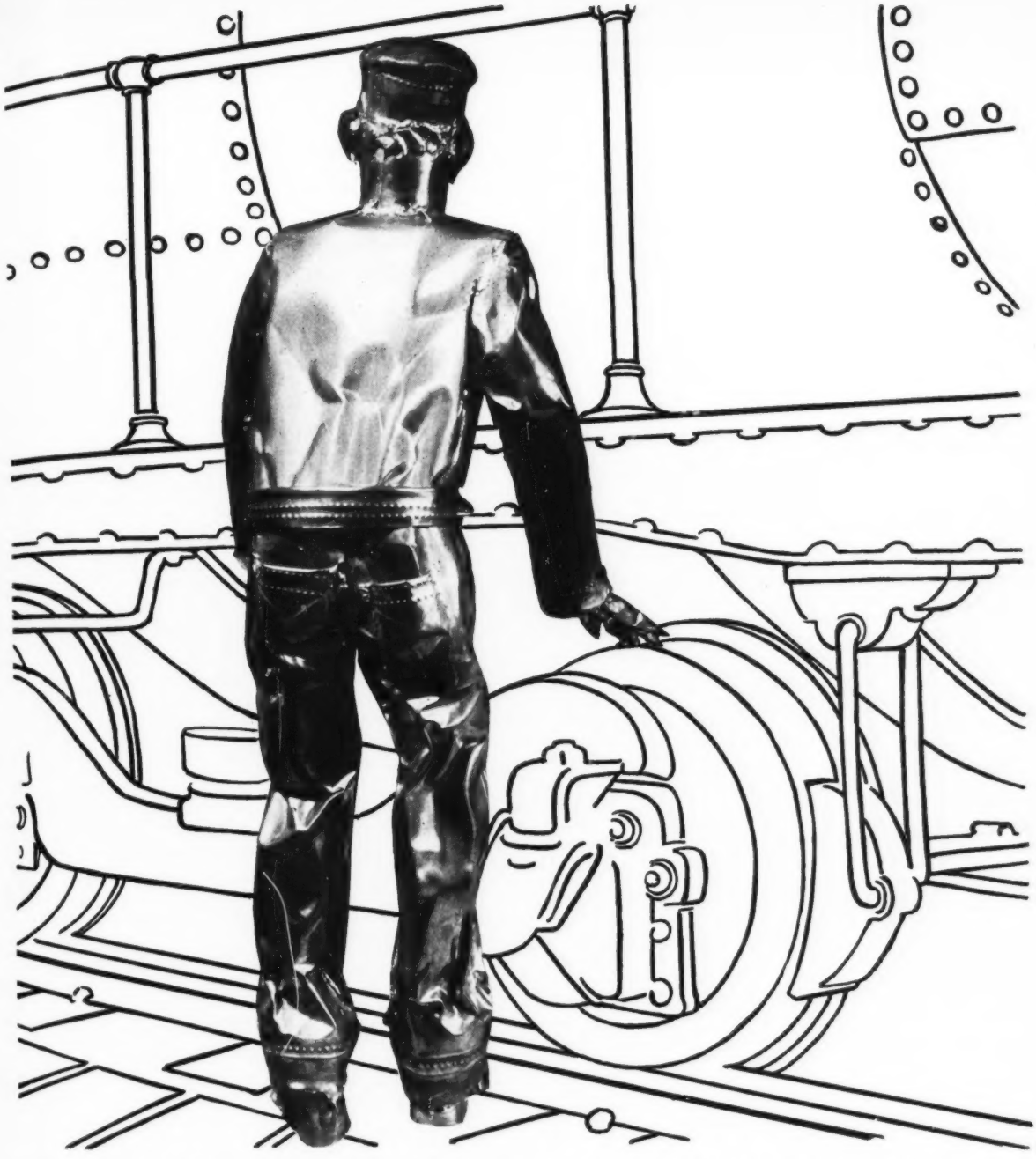
The midwest division of the Salesmens Association of the Paper Industry has a meeting of special interest planned for next Monday noon, November 8 at the Hotel Sherman. R. U. Harmon, superintendent of Superior National Forest with headquarters at Duluth, Minnesota, is to deliver an address at the regular weekly meeting, describing the woods used in the manufacture of paper. Samples of coniferous woods used in paper making are to be exhibited. Members of the Association are inviting a number of guests from the paper and allied trade locally and expectations are that between sixty and seventy five men will be in attendance at what promises to be a high light program for the SAPEYE year.

Discusses Value of Paper in Printing

The current issue of the "Informant", newsy house organ of the Zellerbach Paper Company, devotes quite a bit of space to the 1939 Western World's Fair, talks about the value of paper in promoting printing orders, discusses the advantages of maintaining quality standards and suggests the printing of sealing diagrams for stadii and theatres as a new production outlet for printers. A blue and gold color motif is helpful in creating a most interesting and informative issue.

"Gallery of Printed Ideas"

The Swigart Paper Company this week announced a new "idea service" in the "Gallery of Printed Ideas". More than 7000 printed pieces from all over the world have been classified for the convenient reference of the customer whenever he faces the need for suggestions in planning printed matter. The Gallery is being formally opened during the next two weeks with spacious quarters furnished in the modern manner, comfortable and inviting. About 150 special pieces are displayed each month in the modern Exhibit Room, thus insuring a continuity of interest on the part of the potential buyer. A ten



EBG GETS A CLEAN BILL OF HEALTH . . . RUNNING GEAR CHECKED. *No cylinder drum or tank car is ever allowed to leave EBG's plant without a perfectly clean bill of health. A special staff of inspectors check every detail with military thoroughness. Running gear on tank cars, for example, is examined by a car inspector to make certain it is in perfect mechanical condition. It is part of an exacting system that insures a clean product, delivered in clean containers, guaranteed to give you the satisfaction of trouble-free operating service.*

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FIRST IN THE COUNTRY

minute visit during these occasions parades before the visitor an inspiring showing of new layouts, format, type treatment, color combinations and merchandising ideas. A supervisor is in constant attendance, supplying information required and providing, from the reference files, specimens pertinent to request needs.

Hours are from 9 to 5 Monday to Friday inclusive. In the 125 file classifications by product, idea and format is about everything from simple calling cards to complex catalogs. The Gallery is not only open to all planners or producers of printing without charge but limited loaning of the Gallery specimens is permitted. The announcement of the Gallery is, incidentally, an unusual specimen of paper and printing with Swigart's Lombardia Cover, White, for the folder and Lombardia Cover, Blue, for the cover.

Distributes Kleerfect-Hyfect Products

The Midland Paper Company division of the Zellerbach Paper Company has recently announced that it is now exclusive distributors for Kleerfect-Hyfect, products of Kimberly Clark Corporation. In the same mailing the Chicago concern encloses its revised price list which includes two new lines—Cinco Enamel and Gloss Ink Litho.

Exhibit of Foreign Printing

The Moser Paper Company has recently been featuring an exhibit of foreign printing under the direction of Mr. Charles Streeter who, it is reported, moves the exhibit from location to location as interest merits. The Moser exhibit shows paper specimens from nearly every country, providing samples of printed matter, stock and other details. The groupings are so arranged that the visitor may examine the complete samples of one country at a single time, traveling from group to group for a fascinating birds-eye view of products from foreign countries.

Bird & Son Get Safety Awards

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 8, 1937—With an outstanding safety record, the Phillipsdale, R. I., plant of Bird & Son, Inc., was awarded the major trophy for felt and paper mills, at the annual safety congress held at Kansas City, according to an announcement of the company, made Saturday. The award, a bronze plaque, is made annually to the plant having the best record in frequency, man-hours worked, physical conditions and other outstanding factors. Seven contestants went through the entire year without a single disabling injury. The Phillipsdale plant was considered to have made the best record because it worked the largest number of hours, 312,774.

Another Bird & Son, Inc., unit, the Norwood, (Mass.). Roofing plant, received a special certificate of merit for working 844,715 man-hours with only three disabling injuries during the period of the contest.

In addition to the major trophy, the Phillipsdale plant received, for the third successive year, the bronze trophy awarded to the plant having the best record, Group D, in the paper and pulp section. The plant has actually operated 863,092 man-hours since March 1, 1934, without a lost time accident.

Testimonial Dinner to Isaac Gilman

Leaders of the paper and pulp industry are planning a testimonial dinner as a tribute in appreciation of the lifelong devotion of Isaac Gilman, head of the Gilman Paper Company, to philanthropic and communal affairs. At a luncheon called by the Paper Industry Division of Federation at the National Democratic Club Wednesday, November 3 it was voted to hold the dinner at the Hotel Commodore, at some date to be announced later. Henry Nias, who presided at the luncheon meeting, predicted an attendance of more than 500.

"The dinner will present our industry with the opportunity not only of honoring Mr. Gilman, beloved by every man in the trade, but also of pledging our support to the combined New York-Brooklyn Federation Campaign," Mr. Nias stated.

"The drive this year seeks $6,250,000 in behalf of 116 medical and social welfare institutions. This great humane undertaking deserves the wholehearted support of every communal-minded individual in the pulp and paper industry. In this, we will follow the example of leaders in practically every other business division in New York."

Mr. Gilman, in the forefront of the paper trade for more than fifty years, has been divisional leader of the Paper Industry Division of Federation off and on for more than twenty years. He has been closely identified with numerous charitable undertakings over a similar period.

Mr. Nias, who accepted the chairmanship of the executive committee of the Paper Industry Division, announced that D. Samuel Gottesman had been appointed chairman of the dinner committee.

The co-chairmen in charge of arrangements are Alfred Bleyer and Henry Kurniker. Associate chairmen are Maurice Rosenfeld and Jacob Schorsch. Abraham Mazer is treasurer.

Chairmen and co-chairmen of executive committee trade units include: Paper Bag Group: Walter D. Krissel, Benjamin Mintz, Al Newman, William Salzman and Heyman Schreier; Coarse Paper Group: W. Norman Frenkel, Jacob P. Galewitz, Herbert J. Grey, Morris Heller, Benjamin Kushell, M. M. Marcuse, Jules Stille, George Stoll, Jack Weill and Max Weill; Pulp Group: Morris Gintzler, Harry Hughes and Maurice London; Cosmopolitan Association: David Kasson and M. Schwartzapel; Metropolitan Association: Michael Posner, Louis Silfen and Arthur Stein.

Also, Abner Koplik, chairman, Paper Stock; Bernard Sharp, chairman, Export; Jack Sincoff, chairman, Paper Board; and William Eisner, chairman, Specialties.

Connecticut Valley Superintendents Meet

GREENFIELD, Mass., November 9, 1937—The Fall meeting of the Connecticut Valley Division of the American Pulp and Paper Mill Superintendents Association was held here Saturday at the Hotel Weldon. Papers written by Arthur B. Green, consulting engineer on "Some Fundamentals in Beating and Refining" and by J. G. Rearick of the Warren Steam Pump Company on "Pumping Problems in Paper Mills" were read and discussed. Mr. Rearick's paper was followed by a forum on pumping problems and a questionnaire followed Mr. Green's paper.

An informal dinner and dance followed the meeting which was held in the afternoon.

Financial News of Pulp and Paper Industry

Bond Mortgage of $50,000,000 Given By Abitibi Co. Is Ruled Valid—Nashua Gummed & Coated Paper Co. Reports $348,111 Net Profit For the Nine Months Ended Sept. 30—Oxford Paper Co. Reports $891,292

New York Stock Exchange

High, Low and Last for the Week Ending November 10, 1937

	High	Low	Last
A. P. W.	4	4	4
Armstrong Cork Co.	39½	37¼	39½
Celotex Corp.	26	25	26
Celotex Corp. pf.	62½	60	62½
Certain-Teed Products Corp.	7½	6	7⅜
Certain-Teed Products Corp., pf.	29½	25½	29½
Champion Paper & Fibre Co.	32½	30¼	32½
Champion Paper & Fibre Co., pf.	105⅜	105⅜	105⅜
Congoleum-Nairn Co.	25⅝	23⅝	25⅝
Container Corp. of Amer.	17¼	15⅜	17⅛
Continental-Diamond Fibre Co.	10¼	9⅛	10¼
Crown-Zellerbach Co.	13⅞	11⅞	13
Crown-Zellerbach Co., pf.	75	75	75
Flintkote Co.	18	13⅞	17⅞
Robert Gair	6½	5¼	6⅛
Robert Gair, pf.	24	21⅞	23
International Paper & Power	13¾	11¼	13⅜
International Paper & Power, pf.	50⅞	45	50½
Johns-Manville Corp.	79¾	70	79½
Johns-Manville Corp., pf.	123	122¾	123
Kimberly-Clark Corp.	26	22½	23¼
MacAndrews & Forbes	30	30	30
Masonite Corp.	29	28	29
Mead Corp.	15½	13⅝	15½
Mead Corp., pf.	80	76½	76½
Paraffine Companies, Inc.	41⅛	40	40
Ruberoid Co.	23	19	21½
Scott Paper Co.	37⅞	36	37½
Sutherland Paper Co.	22¼	21¼	21⅞
Union Bag & Paper Corp.	12¼	10¾	11⅜
United Paperboard Co.	6½	5½	6⅜
U. S. Gypsum Co.	63¾	54	63¾
U. S. Gypsum Co., pf.	155	154⅛	154⅛

New York Curb Exchange

High, Low and Last for the Week Ending November 10, 1937

	High	Low	Last
American Box Board Co.	11¾	10¼	10¼
Brown Co., pf.	42	38½	42
Great Northern Paper	31½	31½	31½
St. Regis Paper Co.	4½	3⅜	4¼
St. Regis Paper Co., pf.	75	70	70
Taggart Corp.	5½	5	5½

Abitibi Bond Mortgage Valid

TORONTO, Ont., November 8, 1937 — The bond mortgage for $50,000,000 given by the Abitibi Power & Paper Company, Ltd., to the Montreal Trust Co., was ruled valid by Mr. Justice Kingstone at Osgood Hall, Toronto, last week. It was a first charge upon the assets of the Abitibi Company, it was ruled. "The question arises whether the trust company falls within the statute by being a party to the mortgage which has to do with Ontario assets," his Lordship said. "If the New York company, (National City Bank) does offend against the statute by carrying on in Ontario as an unregistered company, does that fact in itself invalidate the mortgage? I think not.

"In the cases quoted by R. S. Robertson, K. C., where you find that an act is prohibited and the doer of the act is punishable, that act is illegal and rights cannot accrue from it. Under our act while a penalty is imposed on an unregistered company for transacting business, there is nothing that says the thing done, the transaction itself, is invalid or void."

The Abitibi company did business with persons living largely in the United States, it was pointed out. His Lordship held it was reasonable that there should be some person or company in the United States associated with Abitibi for the protection of United States shareholders and having a voice in acquiring or disposing of securities which were the subject of the mortgage.

St. Regis Protest Sustained

CANTON, N. Y., November 8, 1927—A protest brought by the St. Regis Paper Company, relative to its forest holding assessment in this county has received favorable action by County Judge James C. Dolan, acting as referee in the proceeding. In 1935 the company was assessed $82,650 on its 22,633 acres of cut-over land and in 1936 the assessment was boosted to $94,170 although there had been no change in the land in the interim. In his decision Judge Dolan states that he has come to the conclusion after hearing and looking over the evidence that the assessment is unjust. Attorneys for the company will move for an order confirming the report of the referee, fixing the amount of the reduction of the assessment, as a special term of court to be held at Malone.

Nashua Paper Earns $7.56 in Nine Months

Nashua Gummed and Coated Paper Company reports consolidated net profit of $348,111 available for the common stock for the nine months ended September 30, or $7.56 a share on 46,058 shares. This figure is after all ordinary taxes but before provision for federal excess profits or undistributed earnings taxes. These earnings compare with $240,672, or $6.08 a share on 39,558 shares, for the first nine months of 1936, before provision for $59,763 of extraordinary expense representing flood loss. After provision for such expense, earnings on 39,558 shares for the first nine months of last year were $4.57 a share.

Oxford for Nine Months Earns $891,292

The Oxford Paper Company of Rumford reports for the nine months ending September 30 last consolidated net earnings after all charges (except Federal excess profits tax and Federal surtax on undistributed taxes) of $891,292. Comparison with the corresponding period of 1936 is not available. For the six months ending June 30 last, net earnings on the same basis were $709,340.

For the nine months, gain from operations before depreciation was $1,685,678, depreciation was $534,741 and interest $150,253, leaving a balance of $1,045,741. After deducting Federal normal income taxes of $154,448, net earnings totalled $891,292.

Central Paper Co. Reports $63,327

The Central Paper Company Inc., successor by reorganization to the Central Paper Company reports as follows for the September quarter:—Net income, $63,327, equal to 89 cents each on 71,058 shares. For the year ended June 30, net income amounted to $326,309, or $4.59 each on 71,058 preferred shares. Net income in preceding year was $141,303, or $1.97 each on 71,573 preferred shares.

Paper Making

As Conducted in the Mills of the L. L. Brown Paper Co.

By Fred R. Davis

The PAPER TRADE JOURNAL *has pleasure in presenting herewith a rather unique essay. The article is not important as news and it has little, if any, technical value, but it is presented solely because of the element of human interest involved.*

The essay was printed originally in the issue of March 1891 of the High School Annual of Adams, Mass., and was written by Fred R. Davis, then a member of the Adams High School, and now, and for many years past, advertising manager of the General Electric Company. The article referred to follows:

There are a great many different kinds of paper and therefore many different ways of making it. The kind I shall write about is the linen ledger paper made at the L. L. Brown Paper Company's mill. This paper is made of linen rags that come from all parts of the world. Most of them, however, come from the eastern countries, where linen cloth is worn more than any other kind.

When they come to the mill, in the great bales covered with coarse sacking and bound together by iron bands, they are taken from the bales and put into a large revolving cylinder that has a shaft covered with halfmoon blades revolving in the opposite direction within it. The slant of the blades, and the wind they make carry the rags to the other end of the cylinder where they come out a great deal cleaner than they were when they were put in. The dust from the rags is carried outdoors by an iron chimney.

After being cleaned in this way they are taken upstairs to the rag room where they are cut into narrow strips by women and girls, who stand in two rows extending the whole length of the room. Each sorter has a box or bin divided into compartments before which she stands. When she comes to a rag that needs cutting she takes it in her hands and draws it rapidly across a scythe shaped blade, that stands upright on the edge of the box, and throws it among the rags already cut.

From the rag-room the rags are taken to another part of the mill and put into large tanks and boiled for twenty-four hours in a chemical solution, after which they are taken to a room full of vats. These vats are shaped like an ellipse but have a partition through the middle lengthwise. It is around this partition that the rags, now changed to pulp, are kept circulating. Every time the pulp goes round, it goes under a cylinder covered with spikes. There are five or six of these vats in the room, each vat containing finer pulp, the spikes on the cylinder grinding it finer every time it goes round. The different cylinders have finer spikes and they are closer together. Fresh water is put in as often as the pulp begins to flow too slowly. When the pulp is as fine as the cylinder can make it the water is drawn off by a curious contrivance.

Hung above the vat is an octagonal cylinder that is let down, when in use, so that it is submerged about three inches. This cylinder is covered with very fine wire gauze just fine enough for the water to come in, but too fine for the pulp. The cylinder revolves slowly enough for the water to soak in as the pulp goes round but too fast for the water to run out through the wire gauze. Instead of going out the way it came in it is carried to the axis on which the cylinder revolves and carried down a pipe to the river. After going through the vat long enough the pulp is let through a trap door in the floor of the vat into two big tanks in the cellar where it is kept until wanted.

The next process is the making of the pulp into unfinished paper. The pulp is drawn up from the tanks in the cellar to a flat sheet of iron which is kept vibrating by a cogwheel. The vibrating is kept up to spread the pulp evenly over the surface of the machine. The pulp now has the appearance of skim milk. From the sheet of iron it is carried on a wire gauze belt the width of two sheets of the finished paper, or about five feet wide, to and under a roller where the wire belt is changed to a felt belt. The wire belt is used so that most of the water may run through and be carried off. From the first roller it goes to a copper covered roller which stamps the water mark in every sheet of paper. The words to be stamped are raised about an eighth of an inch from the surface of the roller and when the soft paper comes under them it receives more pressure and this makes the pulp thinner at this point.

After being stamped, it is taken over, under and between several small rollers to a set of large cylinders, each filled with steam, and as the paper is carried almost around one before it goes to another it has time to become thoroughly dried. These cylinders are about five feet wide and three feet high, and, as they are filled with steam they make that room very hot. After going over, around and through the cylinders it is cut the right width for two sheets and then cut into two strips about eighteen inches wide the width of a sheet of their paper.

After being cut the right width it is still only two long strips instead of one. These two strips are then carried side by side through a small vat of a dirty yellow colored liquid to make the paper tough. It is again dried, though not so thoroughly as before, and carried under a small roller with a sharp blade running spirally around it. As the paper goes under this roller, the roller turns round and cuts the paper into sheets about eighteen by twenty inches.

The paper has yet to go through several operations. It is first carried to another part of the mill, the finishing room, where it is run between two heavy cylinders and the finish put on. If you should take a sheet of unfinished paper in your hand it would feel rough and the surface would be uneven. Put it through the rollers and it comes out smooth and shiny with a fine glossy finish.

Before it is finished, however, it is hung up in the upper stories of the mill. These drying lofts are filled with drying frames where the paper is hung up half a dozen sheets together, till they are all dry, then they are taken to be finished. Connected with the finishing room is the place where the paper is

made into different sized packages to be sent to all parts of the earth.

There is a saw-mill and a machine shop in the mill, so the company can make its own boxes and repair most of its machinery. The paper made in this mill is the best linen ledger paper.

Indianapolis Demand Sluggish

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 8, 1937—There seemed to be some sluggishness apparent in the local wholesale market this week and wholesalers are convinced that the situation can not go on indefinitely. They say stocks in retail hands have been permitted to deplete to such an extent that buying will be a necessity before long. The fine paper grades have been noticeably backward for a couple of weeks, but there have been some inquiries during the last week from printers who are angling for large direct mail advertising and catalogue contracts that lead to the belief that it won't be long before this business will improve.

In the common paper field and among the kraft list the situation was a trifle better this week. Wrapping papers moved more steadily than has been the rule as retail business of most sorts responded to the change in seasons. Bags were moving in fair volume, with cleaning and market bags perhaps heading the list. Prices on common papers and bags have been held firm and there is no indication of other than shaded changes.

A fair volume continued during the week for building and roofing papers. The demand is seasonal and perhaps a trifle better than it was this time a year ago. Stocks in retail hands are not heavy and the continued good weather has caused the building season to be extended beyond the usual time. Generally severe weather at this time of the year has caused a severe slump in outside construction. Here also prices are well held.

Newsprint demand is rather active with users taking fair contractural requirements. Prices have shown no change in the last week and none now is expected. Demand for waxed paper fram the baking trade is fair as is demand for cellophane.

Paper stock men say the rag market is very quiet and the paper market shows little change from a week ago. Paying prices have not been satisfactory.

Beidellite for De-inking Paper

The recent Mineral Industries Conference, sponsored by the Illinois State Geological Survey and other interested units, spent a great deal of time in discussing Beidellite, an Illinois mineral with a number of uses. Speakers analyzed the use of Beidellite in de-inking newspapers which was developed by the Forest Products Laboratory at Madison, Wis. The process consists of cutting the varnish vehicle of the ink by heating the old newspapers with a caustic solution at a temperature low enough that the paper stock is not discolored, adding Beidellite to peptize the carbon black and washing with water so that the carbon is washed through and the pulp is retained on the screen. Beidellite is also mentioned as of use whenever bentonite is stipulated in paper uses and in many other ways. Full information as to the qualities of Beidellite may be obtained by writing Dr. M. M. Leighton, Chief, Illinois State Geological Survey, Urbana, Illinois.

I. P. Co. Signs Agreement

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., November 8, 1937—Announcement is made that the International Paper Company has signed a union shop agreement with representatives of the International Brotherhood of Papermakers and the International Brotherhood of Pulp, Sulphite and Paper Mill Workers following an all day conference last week at the branch plant in South Glens Falls. The new agreement covers the mills at Fort Edward, Palmer and Livermore Falls, Me., which give employment to several thousand persons. The company expressed a willingness to include the Niagara Falls mill as soon as a majority of the employes become affiliated with the unions. At the conference the International Brotherhood of Papermakers was represented by Matthew Burns, president while John P. Burke and Maurice LaBelle, officials of the Pulp & Sulphite Workers Union, looked after the interests of the latter organization. Representatives of the International Paper Company at the meeting included Stuart Kay, of the New York office, C. E. Youngchild, of the Fort Edward mill. General Manager Maxium, of the Palmer mill, and G. J. Adams, of the industrial department.

Delegates from the Fort Edward mill at the conference included Lawrence Butler, Edward Burns, John Culligan and Diminick Hinckley. The Palmer branch was represented by Edward Cook, Levi Burke, Charles Brady, William Moses, Charles Gibson and Floyd Van Dusen. Earl Kelly, Clarence Gustafson and Allen Strasburg were the representatives of the Niagara Falls mill while Roy Mitchell, Clarence Bryant and Oscar Brewer attended from Livermore Falls as representatives of the Pulp & Sulphite Union. All of the mills covered by the agreement signed this week were involved in the long drawn out strike which started in the spring of 1921. A statement issued by labor leaders following the meeting indicates that they are gratified with the signing of the agreement and they look forward to years of harmonious industrial relations with these mills. They believe that both the International Paper Company and the unions involved learned a lesson from the strike in 1921 and expect the signing of the agreement will be followed by similar contracts with many more concerns in this country and Canada.

Miami Valley Ships Less Paper

DAYTON, Ohio, November 8, 1937—The less than carload shipments of paper pooled through the Miami Valley Paper Shippers' Association by the 24 members during the month of September was 7.09 per cent ahead of the tonnage pooled during the corresponding month in 1936, it was revealed Monday by G. R. Braun, secretary of the association.

During this September 11,151,000 pounds were shipped as compared to 10,410,000 pounds pooled in the same month of 1936. A loss of 694,000 pounds, or 5.41 per cent was shown, however, for September 1937, compared with August of the same year, when 11,755,000 pounds were shipped.

The 24 members are located in the Miami Valley, Indianapolis, Indiana, and Chillicothe, Ohio. The Shippers' Association is connected with the Middletown Civic Association.

Obituary

Frank B. Shemanski

[FROM OUR REGULAR CORRESPONDENT]

STEVENS POINT, Wis., November 8, 1937—Frank B. Shemanski, manager of the cost department of the Whiting-Plover Paper Company, died Tuesday morning, November 2, at St. Michael's hospital. He was taken ill the previous day and suffered a cerebral hemorrhage.

Mr. Shemanski joined the Whiting-Plover organization in 1912, after being employed with the Kimberly-Clark Corporation at Neenah, Wis. He has been prominent in civic activities of Stevens Point, was a past exalted ruler of Elks Lodge, secretary-treasurer of the Stevens Point Hotel Company since 1923, and a member of The American Legion and the Knights of Columbus. He was 45 years old. Survivors include his widow, two daughters and one son.

Funeral services were held November 5 at St. Stephen's church here.

John Milton Allen

John Milton Allen, of the sales department of the International Paper Company in Chicago, died at

JOHN MILTON ALLEN

Milwaukee, Wis., October 28. An obituary notice of Mr. Allen was printed in the issue of the PAPER TRADE JOURNAL of November 4, 1937.

Robert Gair, Jr.

Robert Gair, Jr., of Syosset, Long Island, died of heart failure Wednesday night, November 3. Mr. Gair was the son of Robert Gair, inventor of the modern method of manufacturing folding cartons and founder of Robert Gair Company, Inc., and Emma Eyre. He was born in Brooklyn on September 6, 1881. After finishing high school, he went to work with his father when about sixteen years of age and worked his way up to the Vice-Presidency. After his father's death, he relinquished his connection with Robert Gair Company to become President of Gair Realty Corporation and G. E. President of Gair Properties, Inc. He was a member of the Seawanaka Yacht, Crescent-Hamilton, Piping Rock, Saint Andrews Society, and the Loyal Legion. His hobbies were golf and bridge and he was a member of Crockford's. He married Jean Adams, of Brooklyn. Surviving are the widow, Mrs. Jean Adams Gair, his two children, Elizabeth Gair and Brenda Gair, his brother, George West Gair, of Greens Farms, Conn., Chairman of the Board, Robert Gair Company, Inc., and his sisters, Mrs. Edward Sweeney, Miss M. Elizabeth Gair, Dr. E. Florence Gair, all of New York, and Mrs. William Gill, of South Orange, N. J.

E. Kenneth Hunt

E. Kenneth Hunt, sales promotion and advertising manager of the Champion Paper and Fibre

E. KENNETH HUNT

Company, died October 28, 1937, in Hot Springs, Va. An obituary of Mr. Hunt was printed in the issue of the PAPER TRADE JOURNAL of November 4, 1937.

T. H. Hammond

T. H. Hammond, founder and president of the Hammond Bag & Paper Company, of Wellsburg, W. Va., died in a hospital in Terre Haute, Ind., October 30, from a paralytic stroke.

Mr. Hammond began his business career with the S. George Company, of Wellsburg, manufacturers of paper and paper bags. Later he became associated with the Harvey Paper Company in an executive capacity. In 1917 he went to Watertown, N. Y. as manager of the plant of Taggert Brothers. In 1922 he returned to Wellsburg and organized the Hammond Bag & Paper Company.

Mr. Hammond was a member of the Methodist Episcopal Church and president of the Brooke County Taxpayers' Association. Surviving are his wife, two sisters and two daughters. Funeral services were held November 2 from the family home on Pleasant street, Wellsburg.

Cigarette Paper Mill for Durham

A plant to manufacture cigarette paper will be erected in Durham if surveys now under way come up to expectations, according to a press dispatch under date of November 6 from Durham, N. C. Water tests have been made and laboratory facilities have been set up for the purpose of determining if suitable paper can be manufactured here for the cigarette industry.

At the present time most of the paper used in the manufacture of cigarettes is made in France. The raw material is flax, a farm product which is the principal source of linen and which grows in the more or less colder areas.

Durham manufactures more than a fourth of the nation's cigarette output and has two of the largest cigarette manufacturing plants in the world. The paper that goes into the manufacture of cigarettes has been an important factor of the industry since its inception.

Whether the surveys now under way point to the cultivation of flax or to the cultivation of some product calculated to take the place of flax has not been learned, although it is known that information has been sought regarding the incidence of rainfall in this and adjoining areas, and that test farms have been set up throughout the Carolinas. It is also known that one of the local tobacco manufacturing concerns has been operating a chemical laboratory for the past several months in connection with the future manufacture of cigarette paper.

Last summer a high official of the company that manufactures a large portion of the cigarette paper came to Durham from his home in France, it is learned, leading to the speculation that his company may sponsor the local project. His visit coincided with tests made by the duPont Company of Wilmington, Del.

Empire State Paper Men Meet

The Empire State Paper Association held its first fall meeting October 15, at the Hotel Syracuse, Syracuse, N. Y. President John V. McCarthy presided at the General Session opening at 10:30 A. M.

The principal address was made by J. H. Londergan, assistant secretary of the National Paper Trade Association, who discussed present market conditions. At the afternoon sessions Max S. Dilts, vice president, lead the discussion on wrapping papers and Harold L. Cowan, vice president in charge of the Fine Paper Division, was in charge of that program. Members were in attendance from all the principal cities in New York State.

Completing Repairs To Collins Dam

HOLYOKE, Mass., November 9, 1937—Work on the repairing and refacing of the dam of the Collins Manufacturing Company at North Wilbraham is nearing completion. The dam was damaged during the big flood of March 1936. The entire apron had to be replaced and a new apron containing 50,000 feet of six-inch oak timbers replaced the old apron. Some 30,000 feet of hemlock timber was used in replacing the crib of the dam.

Seinsheimer Paper Corp. Moves

The Seinsheimer Paper Corporation, Cincinnati, Ohio, has just moved into its new building at Colerain, Alfred and Cook streets. An illustration of the new building occupied by the company is presented herewith. This new location was selected for its central location and to afford greater storage facilities. It has been reinforced for heavy loads and prepared

NEW HOME OF SEINSHEIMER PAPER CORP.

to operate at a minimum of expense. This is the second move this company has been compelled to make within the year, the first being due to the flood at which time it suffered severe losses. The trade should take notice of this change of address.

Japan Increases Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 3, 1937—Production of machine-made paper by companies of the Japanese Paper Manufacturers' Association during the second quarter of 1937 reached a total of 282,890 short tons, an increase of 13 per cent over the preceding quarter and of 23 per cent over the corresponding quarter in 1936, according to a recent report from Assistant Trade Commissioner Carl H. Boehringer, Tokyo. Production for the first 6 months of the current year are reported at 532,865 short tons, an increase of 20 per cent over the same period in 1936.

The heavy demand for paper of all sorts but chiefly printing paper caused the Japan Paper Manufacturers' Association to lower the curtailment rate from 28 per cent to 10 per cent, effective June 1 for a 12-month period. The rising prices for paper and the fact that domestic producers were curtailing their production more than was deemed necessary, as well as the steady expansion of Japan's exports of paper, were responsible for some frank criticism appearing during the past several months.

H. J. Ratelle Goes To Minneapolis

MINNEAPOLIS, Minn., November 8, 1937—H. J. Ratelle, formerly of the Chicago office of the Minnesota and Ontario Paper Company, has been transferred, with Minneapolis as his headquarters, on combined sales and service work.

Management of Inventions

INVENTIONS AND THEIR MANAGEMENT. By Alf K. Berle and L. Sprague Published by the International Textbook Company, Scranton Pa. 745 Pages, Price $4.50. Reviews prepared by C. W. Rivise, Chairman, TAPPI Patents Committee.

It is the purpose of the book to teach the prospective inventor the business of inventing. "Inventing," to quote the authors, "is a business, and he who would work in this field must, to be successful, know the conditions in it and the rules according to which it is conducted." The prospective inventor must know how to visualize and appraise current opportunities and needs for improvements in the arts, in order that he may confine his efforts to things that will be profitable and avoid wasting time and money on things that will not be profitable. He must also have sufficient grasp of the fundamental principles of patent law and economics so as to be able intelligently and safely to transact business relating to inventions and patents, to determine what constitutes invention and patentability, to evaluate patents and patent situations strategically and financially, and to cooperate to the best advantage with his patent attorney in obtaining, safeguarding and defending patents.

The book is planned to guide inventors in every aspect of their work from the birth of the idea to the successful exploitation of the resulting patent. It discusses such important topics as preserving proof of conception, the various kinds of patents and the protection they afford, obtaining financial backing, the selection of a competent patent attorney and how to cooperate with him in obtaining the greatest measure of protection, the prerequisites of patentability, Patent Office procedure, how to read patents understandingly, how to proceed to exploit an invention and how to evaluate a patent. The authors also discuss other important matters such as trade marks, copyrights, foreign patents and accounting and taxes in relation to patents.

A very important and novel feature of the book is a large number of reference cases, each one of which relates in a very interesting and informative manner the actual experience of an inventor, business man or attorney in the field of inventions and patents. The book also includes an excellent readily accessible glossary of legal, technical and commercial terms as well as a carefully prepared index, table of cases and bibliography.

In conclusion, it may be stated that the book makes intensely interesting reading, and what is exceedingly rare in nontechnical book on a highly technical subject, the book is extremely accurate. It may also be stated that the reviewer was very favorably impressed with the logical arrangement of the subject matter as well as with the splendid format and printing of the book itself.

Roderick O'Donoghue Opens Office

Roderick O'Donoghue recently opened an office at 420 Lexington avenue, New York City, to carry on the business of a pulp and paper consulting engineer.

Mr. O'Donoghue has been engaged in this profession for over 25 years. He was connected in this capacity with the former Riordon Pulp and Paper Company (now part of the Canadian International Paper Company), the International Paper Company in New York, George F. Hardy, the well-known consulting engineer, and the Oliver United Filters, Inc., manufacturers of vacuum filters.

Mr. O'Donoghue has worked on the designing of many new pulp and paper mills. The fifteen years spent with the International Paper Company, however, dealt chiefly with mill improvements to reduce operating costs. This covered a wide range of problems taking in as it did their many plants. Mr. Donoghue also spent a number of years in actual mill operations. He is interested, therefore, in not only handling new construction work but also the operating problems connected with existing mills, embracing stock preparing, mill wastes and white water problems, materials handling, paper finishing and handling, maintenance control systems, brown stock washing, bleaching systems, wood preparing, increased reduction of pulp and paper mills with the existing equipment and the reduction in costs, etc.

At the present time Mr. O'Donoghue is engaged in designing a soda pulp mill for the P. H. Glatfelter Company at Spring Grove, Penna., to take the place of their existing equipment. Construction work is now going on and it is expected that the new digesters, brown stock washing system and wood preparing equipment will be in operation around the first part of the coming year.

Mr. Donoghue is widely and favorably known in the pulp and paper industry.

Bid on Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 10, 1937—The Government Printing Office has received the following bids for 34,500 pounds (300,000 sheets) of light weight M. F. book paper: Marquette Paper Company, 6.88 cents; Barton, Duer & Koch Paper Company, 6.81 cents; R. P. Andrews Paper Company, 6.81 cents; Stanford Paper Company, 7.1 cents; Whitaker Paper Company, 7.1 cents; John F. Post, Inc., 6.8 cents; and Paper Corp. of U. S., 6.81 cents.

For 2,400 sheets strawboard or chipboard: Mathers-Lamm Paper Company, $21.50 per M sheets; R. P. Andrews Paper Company, $21.80; and Platt Corp., $25.58.

For 21,000 pounds (62,500 sheets) of white 100 per cent rag ledger paper: Enterprise Paper Company, 26 cents less 1 per cent; Virginia Paper Company, 22.2 cents; Walker, Goulard Plehn Company, 23.98 cents; Mount Holly Paper Company, 24.85 cents; Old Dominion Paper Company, 20.948 cents; Stanford Paper Company, 22.2 cents; Lee Paper Company, 23.93 cents; Paper Corp. of U. S., 22.67 cents; Reese & Reese, Inc., 24.73 cents; Barton, Duer & Koch Paper Company, 21.87 cents; and R. P. Andrews Paper Company, 21.19 cents.

For 5,100 pounds (100,000 sheets) of yellow safety writing paper: Reese & Reese, Inc., 12.6 cents; Whitaker Paper Company, 13.5 cents; and R. P. Andrews Paper Company, 12.65 cents.

Goes With Knight, Allen & Clark

BOSTON, Mass., November 8, 1937—Russell S. Madden, Jr., son of Vice-president and General Manager Madden, of the American Writing Paper Company, has become associated with Knight, Allen & Clark, Inc., as salesman.

Knight, Allen & Clark, Inc., are improving their sales by 100 per cent.

Sweden Exports More Pulp

In a report received from Commercial Attache Charles E. Dickerson, Jr., Stockholm, entitled "Swedish Exports of Wood Pulp, July, 1937, and January-July, 1937," are seen some very interesting data.

A study of the exports of wet mechanical wood pulp show for the month of July that 32,873 tons were exported to Great Britain, 14,851 tons to France, and 1,548 tons to Norway. For the 7 months period the exports of wet mechanical wood pulp to the same three countries were 216,787, 49,423 and 6,126 tons respectively. Exports of dry mechanical wood pulp for the month of July show 3,638 tons to the United States and 2,489 tons to Spain. Exports of dry mechanical wood pulp for the 7 months period of 1937 show 11,571 tons exported to the United States, 5,569 tons to France, and 2,895 tons to Spain.

Total exports of wet mechanical wood pulp for the 7 months period from January to July, 1937, are given as 288,465 tons as compared with 297,481 tons for the comparable period of 1936. Total exports of dry mechanical wood pulp for the 7 months period of 1937 are given as 26,147 tons, as compared with 25,124 tons for the corresponding period last year.

A study of bleached sulphite exports show that for the first 7 months of 1937 44,376 tons were shipped to the United States, 34,518 tons to Italy, 27,377 tons to Great Britain, and 23,552 tons to Japan. Of unbleached sulphite pulp 222,212 tons were exported to the United States, 94,044 to Great Britain, and 51,935 to France.

Exports of bleached sulphate pulp for the 7 months period ending July, 1937, show that 32,336 tons were sent to the United States, 4,663 tons to Great Britain, and 1,388 tons to France. Of unbleached sulphate pulp exports 246,907 tons went to the United States, 53,402 to Great Britain, 28,931 to Germany, 22,229 to Japan, and 20,195 tons to France.

Nominated to 33rd Degree Masonry

A. T. Nesbitt, president of The Cincinnati Cordage & Paper Co., of Dayton, O., was nominated at the annual meeting of the supreme council of the northern jurisdiction in Milwaukee, Wis., September 29, to receive the 33rd degree.

Mr. Nesbitt is a member of St. John's Blue Lodge No. 13 and a number of other Masonic bodies including Reese Council No. 9, Royal and Select Masters, Reed Commandery No. 6, Knights Templar, the Scottish Rite and Antioch Temple of the Shrine. The honor conferred upon Mr. Nesbitt is the highest in Scottish Rite Masonry.

E. G. Bailey Receives Honorary Degree

Lehigh University, at its Founder's Day exercises at Bethlehem, Pa., October 6, conferred the honorary degree of Doctor of Engineering upon E. G. Bailey, vice-president of The Babcock & Wilcox Company, New York, and president of the Bailey Meter Company, Cleveland, Ohio, for "notable and distinguished accomplishment in the field of combustion and steam engineering."

In 1930 Mr. Bailey was awarded the Longstreth Medal by the Franklin Institute, and in 1936 the Lamme Medal by Ohio State University.

C. S. Pope Appointed Railway Official

Announcement has been received from G. W. Webster, president of the Soo Line Railway of the appointment of Charles S. Pope to fill the newly created office of executive assistant of that Rail System.

Mr. Pope is well known in the newsprint and kraft paper business throughout the United States and Canada, entering it when he became assistant to the trustees of the Minnesota and Ontario Paper Company in 1932 at which time he was also elected executive vice-president of the company's several subsidiaries, including the Fort Frances Pulp and Paper Company Ltd., and the Kenora Paper Company, Ltd.

In returning to the Railway field Mr. Pope reenters a business in which he spent many years prior to his connection in the paper making industry. He first joined the Soo Line as a clerk after his discharge from the Railway Division of the 32nd Engineers, A. E. F., at the close of the War. From his clerical duties he rose to the position of secretary of the line, resigning in 1932 to devote his time to the auditing and treasury affairs of the Wisconsin Central.

Shortly thereafter, he joined the Minnesota and Ontario Paper Company and has been affiliated with that organization up to the time of his appointment to his new position with the Soo Line.

Acquires Crescent Pump Assets

The Vacuum Systems, Inc., 438 The Arcade, Cleveland, O., has recently organized and has acquired all the assets of the Crescent Pump Company, of Detroit, Mich., former manufacturer of Crescent vacuum pumps. The new company has announced that it is prepared to continue the manufacture of pumps, service units now in use and to supply parts. William A. Hatcher, the inventor of the Crescent pump will head the engineering department. The officers of the company are Louis H. Meeker, president; B. E. Hathaway, vice-president; H .W. Dosey, second vice-president, and W. L. Holloway, secretary.

Boston Paper Trade to Meet Nov. 17

[FROM OUR REGULAR CORRESPONDENT]

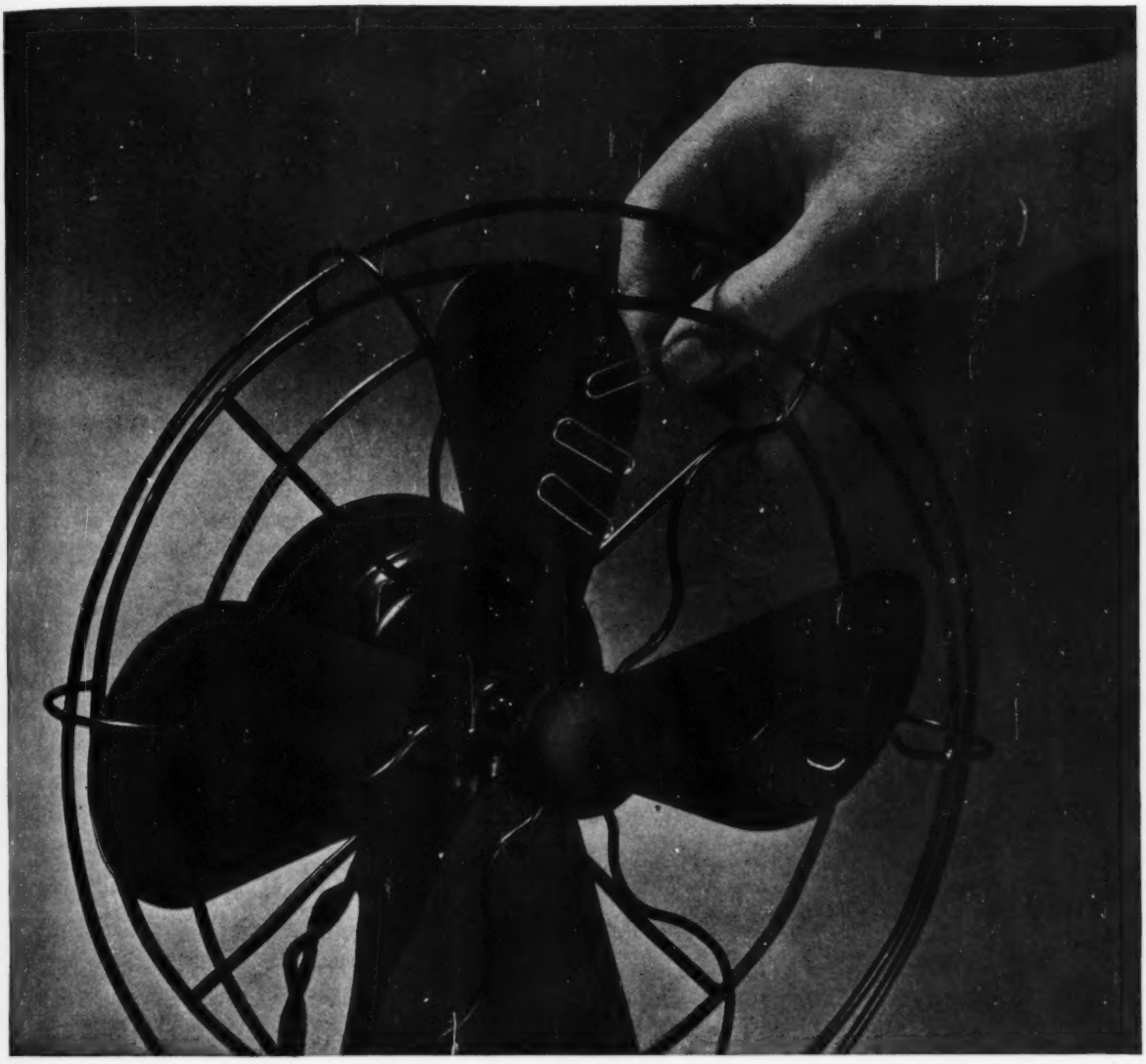
BOSTON, Mass., November 8, 1937—The fall meeting of the Boston Paper Trade Association is to be held November 17 at the Exchange Club. Dr. Daniel L. Marsh, president of Boston University, is to be the speaker. The reception will be at 6 o'clock and the dinner at 6:45 o'clock.

Not Connected with Pagel, Horton & Co.

The PAPER TRADE JOURNAL has been requested to state that E. Erickson recently appointed vice-president of the newly formed Pulp Sales Corporation, representing the Finished Cellulose Association, is not the E. Erickson (Edwin B.) secretary of Pagel, Horton & Co., Inc.

Vassar Paper Co. Mill Burned

PUTNEY, Vt., November 8, 1937—Fire of undetermined origin early on Saturday of last week destroyed the interior of the Vassar Paper Company mill, depriving the town of its principal industry.



Put some paper clips on a fan blade and MAKE THIS DYNAMIC BALANCE TEST

PUT half a dozen paper clips on one blade of an electric fan. Turn the switch. The fan will start to vibrate and jiggle, may fall over, and will soon wear itself out. Why? The weight of the clips has destroyed the fan's dynamic balance.

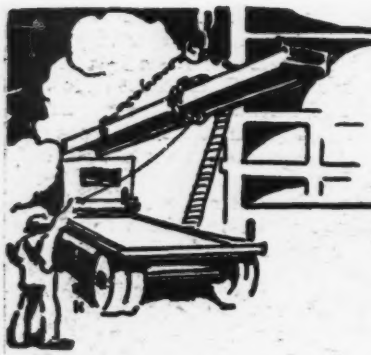
Same principle applies to table rolls. Like the electric fan with the paper clips, many table rolls are not in dynamic balance—they "whip" when revolving at high speed, and of course the whipping disturbs formation.

You *can* be *certain* of rolls in dynamic balance because all Goodrich Duk-Bak Rolls are so made, and their method of manufacture keeps them in balance.

Every Goodrich core is made and tested on a dynamic balance machine as carefully as the crankshaft of the best automobile engine. Next, in the Goodrich process, a layer of soft rubber is added. Over this goes the hard cover, and when the harder rubber shrinks on cooling as all hard covers do, the soft base absorbs the pressure so that the metal core will not be distorted.

Because of their mirror-finish of special rubber, Goodrich Duk-Bak Rolls make better paper by removing more water more evenly. Because of their dynamic balance, these rolls make better paper by assuring an even sheet. A double assurance of more profitable production when you specify Goodrich. The B. F. Goodrich Company, Mechanical Rubber Goods Div., Akron, Ohio.

Goodrich
Duk Bak
TABLE-ROLL COVERINGS



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, of Pulp and Paper Mills

General Construction News

Elkhart, Ind.—American Coating Mills, Inc., Division street, manufacturer of folding boxboard and kindred products, has awarded general contract to the Sollitt Construction Company, Myrtle street, Elkhart, Ind., for new addition to mill, to be one-story, 100 x 175 feet, primarily for storage and distributing service. Cost close to $40,000, including equipment.

Green Bay, Wis.—The Fort Howard Paper Company, manufacturer of tissue and crepe papers, has plans nearing completion for new one-story addition to mill and will begin work on superstructure at early date. No estimate of cost has been announced. Harry W. Williams, Northern Building, Green Bay, is architect.

Greenville, Me.—Fire recently destroyed a building of the Great Northern Paper Company, Millinocket, Me., at Greenville, used for storage and distributing service, with loss reported close to $25,000, with equipment. Plans for rebuilding are under consideration, with cost estimated at approximate like amount.

Fernandina, Fla.—The Fernandina Pulp and Paper Company has awarded contract to the Southern Steel Works Company, 903 Third avenue, North, Birmingham, Ala., for structural steel shapes for different units of bleached sulphite pulp mill, totaling about 420 tons, and early delivery will be carried out. As previously noted in these columns, company is building a new mill, to be equipped for a capacity of 180 tons of pulp per day, estimated to cost close to $6,000,000, with equipment. The Rust Engineering Company, Clark Building, Pittsburgh, Pa., is general contractor for project. Company is a subsidiary of Rayonier, Inc., San Francisco, Cal.

Three Rivers, Mich.—The Eddy Paper Corporation, manufacturer of boxboard specialties, test liner and kindred stocks, has plans nearing completion for new one-story addition to mill, to be used primarily for storage and distribution. No estimate of cost has been announced. Work is scheduled to be placed under way soon.

Baltimore, Md.—The Eastern Box Company, East Brooklyn, manufacturer of solid fiber boxes and containers, has approved plans for new addition to plant, to be one-story, 160 x 300 feet, estimated to cost over $85,000, with equipment. General contract for erection has been awarded to the Engineering-Contracting Corporation, North and Linden avenues, and work is scheduled to be placed under way at once.

Franklin, Va.—The Chesapeake-Camp Corporation has work nearing completion on main units of new pulp and paper mill, on which construction has been under way for a number of months, and it is expected that the plant will be ready for service late in December. As previously noted in these columns, new plant will be given over to the production of kraft papers, with initial installation for a capacity of about 200 tons per day. The paper machine has been furnished by the Pusey & Jones Corporation, Wilmington, Del.; jordan units are from E. D. Jones & Sons Company, Pittsfield, Mass.; and digesters from Blaw-Knox Company, Blawnox, Pittsburgh, Pa. The Improved Paper Machinery Corporation, Nashua, N. H., has furnished screens, thickeners, knotters and auxiliary equipment. The new mill will represent an investment of about $3,000,000. The Rust Engineering Company, Clark Building, Pittsburgh, Pa., is general contractor. J. E. Sirrine & Co., Greenville, S. C., are consulting engineers. The Chesapeake-Camp Corporation is a joint interest of the Albemarle Paper Manufacturing Company, Richmond, Va.; Chesapeake Corporation, West Point, Va.; and Camp Manufacturing Company, Franklin. J. L. Camp, Jr., is president.

Joliet, Ill.—The National Carton Company, Park road, near East Washington street, manufacturer of folding paper boxes and containers, has approved plans for rebuilding of one-story plant building, used primarily for storage and distributing service, recently destroyed by fire, with loss estimated at close to $30,000, including equipment. Reconstruction will cost approximately a like amount. A. W. Madsen is president.

Midland, Mich.—The Dow Chemical Company is advancing its output of cellulose, and production of this recently developed specialty at the plant is becoming an important processing feature of manufacture. Pulp wood is being secured from timberlands in the Upper Peninsula district and in addition the company has planted many hundreds of acres of fast-growng poplar trees. A large part of operations is being carried out at company mill at Marquette, Mich., formerly the property of the Cleveland-Cliffs Company and acquired by the Dow Company some months ago. It is proposed to continue to advance production of cellulose at the plant and to develop an increased market.

Houston, Tex.—The Southwestern Paper Company, 410 Washington street, commercial paper stocks, has concluded arrangements with the International Properties Company, Houston, for construction of new building at Walker avenue and

5 *Reasons why* TENSILASTIC Rubber Rolls *serve longer*

1. They have uniform density throughout the roll—and they hold that density.
2. They do not harden with age.
3. They hold their crown longer.

And... **4. They have balance of Compound.**
5. They have correct Modulus.

Reasons 4 and 5—Balance of Compound and Correct Modulus—explain the long efficient service of Tensilastic Rubber Rolls. For, both are necessary for long productive life. Without Correct Modulus—the ability to snap back to normal after pressure—the roll would soon become out of round. And Correct Modulus depends to a great extent on Balance of Compound.

Install Tensilastics in your machine and you'll appreciate the value of reasons 4 and 5. Tensilastics serve longer.

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E. N. Bechard — 60 E. 16th St., N. E., Atlanta, Ga.
FARNHAM, QUEBEC — 267 Fifth Ave., New York

Pacific Coast Representative: Walter S. Hodges. Pacific Bldg., Portland, Ore.

Hutchins street, to be occupied under a long-term lease. New structure will be one-story, equipped for storage and distributing service and is estimated to cost over $50,000, with equipment. Plans are nearing completion and erection is scheduled to begin soon. H. A. Salisbury and T. G. McHale, Shell Building, Houston, are associated architects. Fred E. Campbell is vice-president and general manager of the Southwestern Paper Company, which is a subsidiary of the Butler Paper Products Company, 110 North Franklin street, Chicago, Ill.

Shelton, Wash.—Rayonier, Incorporated, recently formed to take over and consolidate the Rainier Pulp and Paper Company, Shelton, Grays Harbor Pulp & Paper Company, Hoquiam, Wash., and the Olympic Forest Products Company, Port Angeles, Wash., as previously noted in these columns, has perfected plans for single-management operation of the three mills and will follow out contracts made by the predecessor companies for sales of material, of which a large part is represented by rayon pulp. In addition to this production, the company will produce paper pulp for the S. D. Warren Company, Boston, Mass., under contract, and also will continue an agreement with the Hammermill Paper Company, Erie, Pa., for production of sulphite printing and writing papers, heretofore furnished from one of the mills of the consolidated group. E. M. Mills is president and J. D. Zellerbach, executive vice-president.

Fort St. Joe, Fla.—The St. Joe Paper Company, affiliated with the Mead Corporation, Chillicothe, Ohio, will secure water supply for new local pulp and paper mill, now in course of construction, from a battery of 16 artesian wells about 7 miles from plant site. As recently noted in these columns, a pipe line will be built from that point to mill by the Salmons Dredging Company, Charleston, S. C., consisting of 27-inch, 18-inch and 16-inch pipe, for which contract has been placed at a price of $150,000. A concrete reservoir will be built in conjunction with large elevated steel tank for water storage and distributing service. Active erection of mill units is now under way by James Stewart & Company, Inc., 230 Park avenue, New York, N. Y., general contractor. Plant will cost approximately $6,000,000. George F. Hardy, 305 Broadway, New York, N. Y., is consulting engineer.

Oswego, N. Y.—The Taggart-Oswego Paper and Bag Corporation has awarded contract to the Hagan Corporation, Bowman Building, Pittsburgh, Pa., for new combustion control unit for installation in power house at local mill.

Toronto, Ont.—The Acme Paper Box Company, Ltd., 388 Carlaw avenue, manufacturer of paper boxes and containers, has asked bids on general contract for one-story addition to plant, to be used in part for storage and distribution. It is estimated to cost close to $45,000, with equipment. Work is scheduled to be placed under way soon.

Toronto, Ont.—Bookmatch Manufacturers, Ltd., recently organized with capital of $125,000, will establish a paper-converting division at new local plant for the production of cardboard covers for book matches. Company has leased Building No. 9 at former local automobile plant of Dodge Brothers at 1244 Dufferin street and will occupy for plant, with facilities for employment of about 30 operatives for initial production. It is expected to begin manufacture at early date. L. W. McClennan will be manager at the mill, and R. V. Mower, superintendent.

Sydney, Australia—The Masonite Corporation (Australia), Ltd., recently organized with capital of $1,500,000, to manufacture paper and fiber board products, has plans maturing for new mill and will begin erection at early date. Plant will comprise several one and multi-story units, with power house, pumping station and other mechanical departments, and is reported to cost over $500,000, with equipment. Company will be affiliated with the Masonite Corporation, Laurel, Miss., and will operate under the patents of that company for the manufacture of insulating board and kindred fiber board specialties.

New Companies

Chicago, Ill.—The Acme Carton Company, Inc., 2724 West 14th street, has been organized to manufacture and deal in paper boxes and containers, cartons, etc. Incorporators of new company include M. M. Lornstein, C. J. Bernstein and Albert Davis.

Detroit, Mich.—The Timber and Pulp Company, Inc., has been chartered with capital of $10,000, to deal in pulpwood and kindred products. Robert M. Drysdale, 2213 Dime Bank Building, is principal incorporator and representative.

New York, N. Y.—The Keystone Paper Company, Inc., has been incorporated with capital of $20,000 to deal in paper products of various kinds. New company is represented by Sigmund Moses, 18 East 41st street, attorney.

Wrapping Paper Plant to Utilize Sugar Cane Pulp to be Constructed in Mexico

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 10, 1937—A wrapping paper plant with a capacity of from 10 to 12 metric tons daily is being constructed in the State of Vera Cruz, Mexico, according to a report to the Commerce Department by the office of the American Commercial Attache, Mexico City.

The new enterprise will utilize cane pulp, which is obtainable from the Vera Cruz sugar mills at a reported cost of approximately $2.50 per metric ton, the report stated.

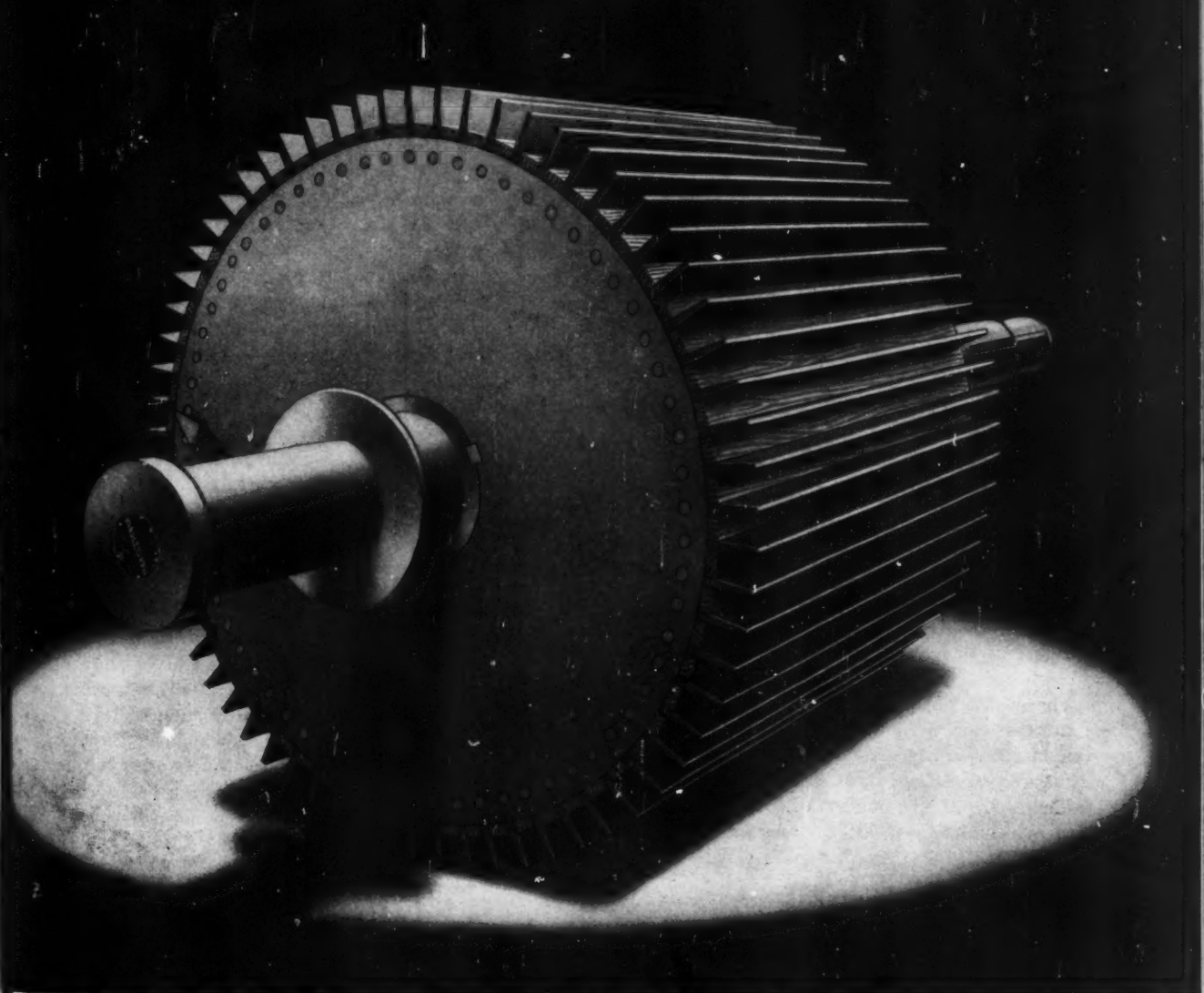
The machinery, most of which was reported to have been purchased in the United States, has already been installed, according to the report.

Complete New Wall Board Mill

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 27, 1937—Aktiebolaget Scharin & Soner, in Sweden, which firm recently sold two mechanical wood pulp mills to the British newsprint concern of Bowater, has completed a new wall board mill at Klemenanas, reported to be the most up to date in the country and with an estimated annual capacity of 2,500,000 square meters, according to a report from Commercial Attache Charles E. Dickerson, Jr., Stockholm. The cost of construction of the new mill was approximately 1,000,000 crowns and in virtue of highly rationalized working methods only 50 workers are necessary for the production of the estimated output.

Dilts



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JOURNAL

Reg. U. S. Pat. Off.

George S. Macdonald, Pres. *Joseph P. Horgan, Secy.*
Executive and Editorial Offices, 15 West 47th St., New York, N. Y.

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Washington Correspondent

Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada and Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. CV New York, November 11, 1937 No. 20

COMING EVENTS IN THE PAPER INDUSTRY

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel Kalamazoo, Mich.

THE BUSINESS OUTLOOK

Industry and trade have entered the final quarter of the year with the gains made in the previous months in production, distribution and payrolls, still at a good level, notwithstanding the current recession in business. The basic factors by which commercial activity is commonly measured are apparently favorable for a continuation of a good volume of business.

The Federal Reserve Bulletin, recently released, stated that money from the banks was going into private business and agriculture to a much larger extent than last year. It said that during the calendar year to September 22, the amount of loans for commercial, industrial and agricultural purposes, increased by $1,070,000,000 over last year. This increase amounted to $260,000,000 in the first half of this year and to $450,000,000 between June 30 and September 22.

"Loans of this type," the Bulletin stated, "which declined sharply during the depression, have had an almost uninterrupted growth since the early part of 1936, beginning first in the larger cities and spreading in the first half of the current year to the country banks." The Bulletin pointed out that earnings of large industrial corporations would be about 30 per cent larger for the nine months ending in September 1937, than in the same period in 1936. Aggregate net earnings of these corporations in the first quarter of the year were about 50 per cent higher than for the same period last year and in the second quarter, about 20 per cent higher.

But there are adverse factors which exert a nullifying effect and bring into play at this time several forces which tend to influence the normal upward trend in industry and trade. These factors are the pressure of politics and the changing relations between government and business, the foreign situation, labor, and the rising costs due to recent legislative acts, with the prospect of more measures of a restrictive nature to come. All these things combine to affect the condition of business and to complicate and confuse the outlook for the future. Specifically, the decline in stock prices, labor and wages and the tax on undivided profits are three spectres which haunt the business mind and project uncertainty into the future.

In the current appraisal of the status of business, much importance is placed in the long held economic theory that the stock market is a barometer of business—that the securities markets discount the future some time in advance. But a comparison of the stock market in relation to industry and trade, indicates that the market price of securities has fluctuated up and down in comparison to general business activity in an irregular and not altogether comprehensive manner.

A few comparisons, taken from the Business Bulletin published by the LaSalle Extension University, may serve to point out this difference in the trends of securities and business. "In 1900, production dropped below normal and so continued to the end of 1902, while the trend of the stock market continued upward. From 1903 to the close of 1905, production and trade declined while stocks advanced. During 1906 and 1907, production and trade showed marked activity, while stocks declined. In 1908 and 1909, industry and trade had a severe setback, but the stock market declined only during the first months of 1908 and went up sharply during the remainder of those years. In 1910, production and business were up, while the stock market went down. During 1911 and 1912, business and industry were below normal, while stocks went up."

And so, "In 1923, business was below normal, while stock prices went up. From 1923 to 1929, industry and trade rose gradually and stocks mounted to excessive heights. When stock values crashed in 1929, business recovered slowly, while stock prices rose more rapidly, with stock dividends yielding less than the interest of bonds. At the beginning of this year stocks have dropped, with industry and trade on the uptrend. Unless a catastrophic European war breaks out, the present decline should stop when it is apparent that normal dividends produce a net yield of income 1 or 2 per cent above bonds. Many stocks are now at those levels."

Whether the current year is comparable to previous

years, when the stock market declined while industry and trade rose, only the future can determine. While many may not abandon the stock market as a barometer of business, it may be well not to discount other factors too much.

Another factor which it is quite important to consider in any attempt to appraise the current business situation, is the adverse effect of rising taxes on the industrial activity of the country. In an address at the annual meeting of the Controllers Institute of America, held in New York last month, Godfrey N. Nelson, lawyer, tax expert and secretary of the New York Times Company, urged the repeal of all depression measures, inasmuch as the nation is now on the road to recovery. "In the midst of the depression," Mr. Nelson said, "we proceeded gradually to destroy, step by step, the beneficent taxing features instituted more than a decade before. Capital quite simply escapes the high surtaxes by withdrawing into tax-free public securities. Obviously, this can be mitigated only by the adoption of moderate surtax rates.

"What was feared in 1934, is now actually happening. The taxation of business today is not merely a matter of contributing to the maintenance of government; it is sought by the tax laws to regulate business according to social aims and objectives. And the danger of this procedure is that, however lofty the motives, the regulatory processes may destroy the established industrial system upon which the future prosperity of the country must depend.

"The Revenue Act of 1936 ushered in the most devastating form of taxation ever imposed upon business—the undistributed profits tax. To call it a tax would seem to dignify it, because it is in effect a penalty for failure to do an act which may be unlawful under State law, which may not be permissible either by restraint or contractual obligation or by reason of financial inability, or which cannot be done intelligently because the law itself does not afford the opportunity. The measure is so basically unsound that one may well question whether its proponents understood its devious workings. Being now on the road to recovery, experimentation in taxation should cease. The lifting of these pressures would permit of a resumption of the evolutionary trend in taxation, clearly in evidence prior to the depression."

In expressing the opinion that the current business recession is of an intermediate character, the November letter of the National City Bank said in part: "There is no evidence that business sentiment is demoralized, that business men are conducting their affairs with less energy and application or that any significant number fear a return to 1932 conditions.

"If the recession is due chiefly to overstocking and special instances where costs and prices are out of line, it will be of an intermediate character, and precedents suggest strongly that it is of that type."

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association:

COMPARATIVE MONTHLY SUMMARIES

Months	1937	1936	1935	1934
January	90.3% (c)	76.1%	65.8%	.....
February	90.1% (c)	77.9%	70.0%	.....
March	90.3% (c)	76.0%	70.5%	.....
April	92.1% (c)	82.3%	70.0%	.....
May	90.6% (c)	81.6%	69.4%	.....
June	87.3% (c)	80.7%	72.3%	.....
July	81.8% (c)	77.3%	64.9%	.....
August	82.9% (c)	81.5%	70.9%	.....
September	78.7% (c)	80.5%	71.9%	58.2%
October	73.0% (c)	87.6%	75.6%	64.7%
November	.....	88.0%	75.3%	61.7%
December	.....	85.9%	71.2%	59.6%
Year Average	.....	81.3%	70.5%	.....
Year to Date				
First 43 weeks	85.7%	80.0%	70.0%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1937		CORRESPONDING WEEKS, 1936	
*September 25	81.9%	September 26	84.3%
*October 2	79.2%	October 3	85.3%
*October 9	77.1%	October 10	87.1%
*October 16	74.9%	October 17	87.6%
*October 23	73.5%	October 24	88.2%
*October 30	64.5%	October 31	89.7%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks					
Ratio Limits	Sept., 25, 1937	Oct., 2, 1937	Oct., 9, 1937	Oct., 16, 1937	Oct., 23, 1937	Oct., 30, 1937
0% to 50%	82	88	94	113	98	77
51% to 100%	233	227	221	199	206	152
Total Mills Reporting	315	315	315	312	304	229

* Subject to revision until all reports are received.
(c) Basic capacity data have been adjusted to correspond with rating reported by individual companies.

Paperboard Operating Ratios

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

Mos.	1937	1936	1935	1934	Mos.	1937	1936	1935	1934
Jan.	80% (e)	61%	61%	....	July	67% (e)	69%	59%	....
Feb.	86% (e)	67%	67%	....	Aug.	74% (e)	75%	65%	....
Mar.	87% (e)	68%	67%	....	Sept.	....	76%	69%	62%
April	89% (e)	70%	61%	....	Oct.	....	82%	76%	63%
May	86% (e)	68%	61%	....	Nov.	....	79%	70%	56%
June	75% (e)	68%	65%	....	Dec.	....	74%	60%	52%

Week end. Sept. 25, 1937—70%
Week end. Oct. 2, 1937—71%
Week end. Oct. 9, 1937—67%
Week end. Oct. 16, 1937—68%
Week end. Oct. 23, 1937—64%
Week end. Oct. 30, 1937—62%

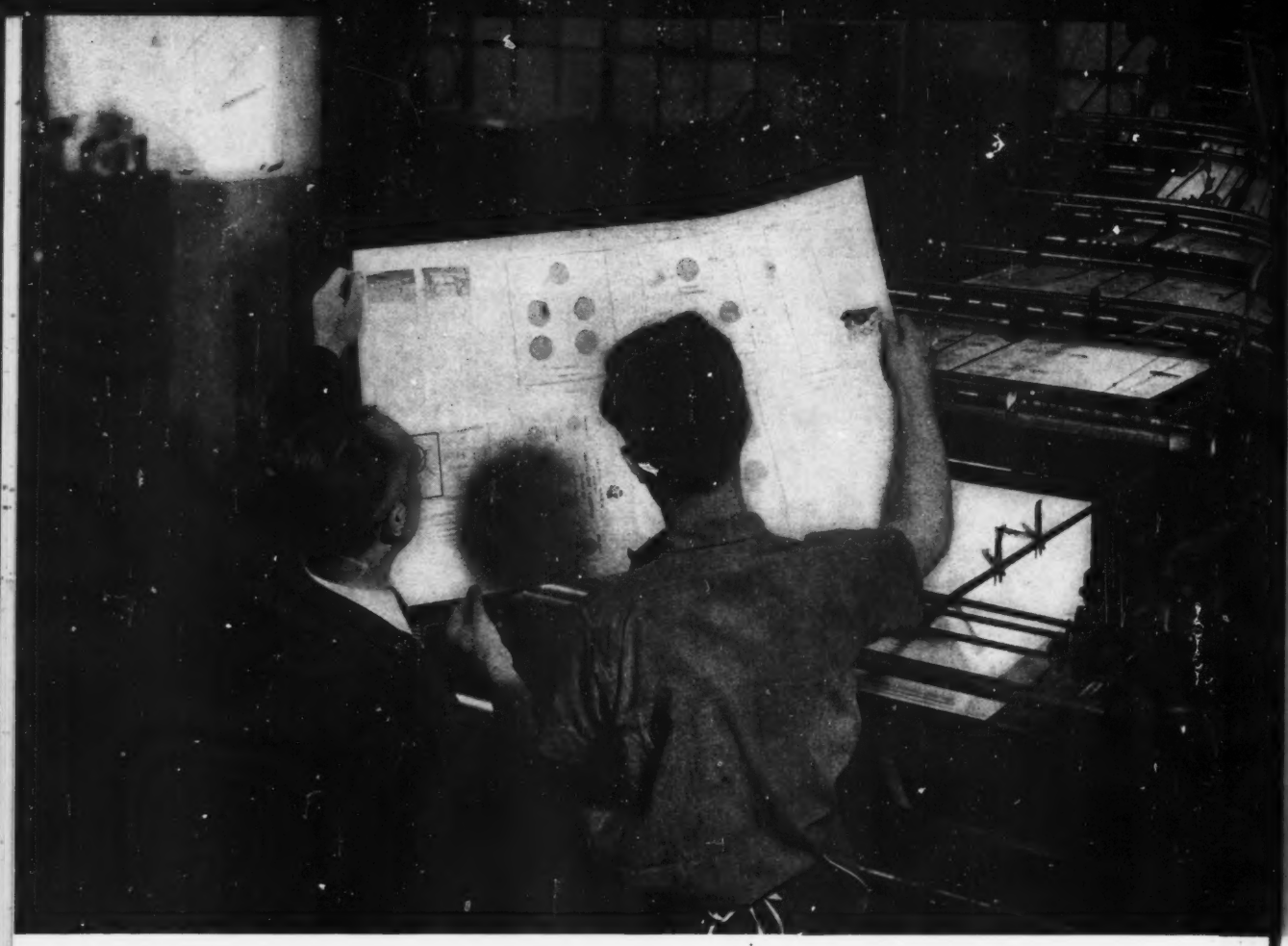
(e) Basic figures revised to include new members of the National Paperboard Assn.

James Rogers Named Chairman

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., November 8, 1937—James Rogers, of the J. & J. Rogers Company, of Ausable Forks, was named chairman of the New York-Canadian branch of the American Pulp and Paper Mill Superintendents' Association at the closing business session of the fall meeting held here early in the week. He succeeds George K. Walker, superintendent of Finch, Pruyn & Company, C. P. Ludington, of the E. B. Eddy Company, of Hull, Quebec, Canada, was elected first vice chairman and A. J. Loman, of the Robert Gair Company, Tonawanda, was named second vice chairman. Lester J. Smith, superintendent of the Ticonderoga branch of the International Paper Company, was elected secretary-treasurer, succeeding Thomas N. Rider, sales representative of H. Waterbury & Sons Company, of Oriskany.

The session was followed by a luncheon at noon and in the afternoon a golf tournament was staged at the Glens Falls Country Club.



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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Review Of The Paper Industry Literature

Abstracts Compiled By the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman.

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Cellulose

The Alkaline Decomposition of Spruce Wood. II. R. S. Hilpert and O. Peters. Ber. 710B, No. 3: 514-517 (March 3, 1937).—As a further proof that lignin as such is not present in wood but is a secondary reaction product, spruce wood was benzylated by means of sodium hydroxide and benzyl chloride. The benzylated spruce wood was treated with a mixture of 150 cc. fenzene and 15 cc. alcohol, leaving 16 per cent undissolved. This residue (28 per cent ash) has a chemical composition similar to the benzylated spruce wood. The dissolved benzyl wood is precipitated from its solution by means of ether and has the same composition as the original benzylated wood. On xanthogenation of spruce wood, 92 per cent of the wood is dissolved by water from which solution 50 per cent can be precipitated by dilute sulfuric acid as a white voluminous substance (with 4.7 per cent OMe), analyzing for a cellulose anhydride, while the other part remains in the colorless solution. Calculated on the methoxyl content, the aqueous solution should contain 40 per cent of the lignin.—C. J. W.

Lignin. XVI. Spruce Lignin. Karl Freudenberg, Martin Meister, and Erich Flickinger. Ber. 70B, No. 3: 500-514 (March 3, 1937).—On the basis of his former work on lignin [Ber. 62: 1554 (1929)] and the fact that Hägglund finds about 2.5 per cent formaldehyde on distillation of lignin with sulfuric acid, Freudenberg assumes that primary spruce lignin is built up from seven C_{10} units including one piperonyl group. Lignin, decomposed by a mild alkali fusion with subsequent methylation and oxidation, yields, in addition to 14 per cent veratric acid, 4 per cent isohemipinic acid and some dehydrodiveratric acid. Similar products are obtained from lignosulfonic acid and from ligno-thioglycolic acid. Model experiments starting with dehydro-diisoeugenol which is methylated and oxidized at its double bond to the corresponding carboxylic acid (called Erdtman's acid), and using the same course of alkali decomposition, methylation, and oxidation give 21 per cent veratric acid and 5 per cent isohemipinic acid. When Erdtman's acid is cooked with bisulfite or treated with thioglycolic acid according to Holmberg, the furan ring is opened with formation of a sulfonic acid and thioglycolic acid, respectively, and also of a new phenolic hydroxyl group in which the acid groups are bound to the carbon atom adjacent to the vanillin nucleus.—C.J.W.

Mercurization of Wood, Straw, and Lignin. A Proof Against the Presence of Aromatic Components. R. S. Hilpert, E. Littman, and R. Wienbeck. Ber. 70B, No. 3: 560-567 (March 3, 1937).—Since isolated lignin can be mercurized and in this way the presence of aromatic ring systems be proved, it should also be possible to introduce mercury acetyl groups into wood if the lignin is already present in wood and is not a secondary reaction product. Vanillin, spruce wood, benzyl spruce wood, straw, methyl lignin, and Willstaetter lignin from straw, and spruce were mercurized. While the mercury could not be split off from the mercurized vanillin, all the other substances combined with mercury to yield compounds from which the mercury can be split off nearly completely by dilute hydrochloric acid. It seems improbable, therefore, that aromatic ring structures are present in wood. The aromatic scission products obtained from wood and lignin are secondary reaction products.—C.J.W.

Formation of Lignin. L. P. Zherebov. Bumazhnaya Prom. 15, No. 9: 27-37 (Sept., 1936); C. A. 31:2418.—A tentative report on the dynamics of lignin formation is based on the discussion of the processes of lignification and delignification in a plant, and the examination of the contents and composition of lignin at different sections of pine and winter-rye stalk at different stages of growth by the stain and fluorescence methods. The accumulation of lignin in a vegetable tissue proceeds differently according to the physiological function performed by it. In pine tissues of a young sapling and a tree several years old the percentage of lignin is the same. In the stalk of a cereal plant the lignin content increases continuously from zero to normal value of a ripe plant. In conifers and cereals the primary lignin contains no methoxyl groups, the contents of which gradually increase and reach the maximum at the full maturity of the plant. Hence, the lignification of vegetable tissue is a process of accumulation of methoxyl groups and not that of lignin. The absence of methoxyl groups in the primary lignin refutes the supposition of Klason and other investigators that lignin is formed from a coniferyl complex. The observed presence of a large quantity of hydrocarbons with methoxyl groups, gradually decreasing

with the increasing contents of methoxyl groups in lignin, shows conclusively that these hydrocarbons take part in the lignin formation. Botanical studies showed that the lignification of cells and tissues is not the final process of plant growth. The cells and tissues are capable of delignification, whereby lignin with its methoxyl groups migrates completely to a different part. Such obviously fermentative decomposition of lignin and its reproduction in another part of a plant indicate the hydrocarbon origin and structure of lignin, which, under exceptional conditions and rearrangement can give compounds of aromatic character.—C.J.W.

Action of Chlorine and Hypochlorous Acid on the Incrustation Substances (Lignin) of Pulp and Viscose. A. S. Shpital'nyi and E. Meos. Org. Chem. Ind. (U.S.S.R.) 2:282-284 (1936); C. A. 31:2420.—The accuracy of the lignin determination by precipitation with 72 per cent sulphuric acid was studied by comparative tests of viscose and spruce pulp with and without preliminary chlorination. The effect of resinous matter on the results of the determination was examined by treating samples with chlorine before and after the extraction with benzene and alcohol. The results show that the degree of pulp destruction does not affect essentially the quantity of lignin precipitated by sulphuric acid and does not influence at all the amount of chlorine combined. A somewhat greater chlorine content in unextracted pulp preparations is explained by chlorination of the resinous matter. The greater rate of lignin chlorination explains the relatively small difference between the chlorine contents of extracted and unextracted samples. Spruce sawdust is easily chlorinated by hypochlorous acid, while pure cellulose remained unchanged after 23 hours in contact with hypochlorous acid.—C.J.W.

Carbohhydrates as Sources of Error in the Lignin Determination. S. Schmidt-Nielsen and Arve Opperud. Kgl. Norske Videnskab. Selskab, Forh. 9, No. 5:16-9 (1935); C. A. 31:2419.—The seaweeds *Laminaria* and *Rhodymenia* show an appreciable percentage of lignin by the method involving the use of mineral acids but none by the thioglycolic acid method of Holmberg. To determine whether this was another instance of humification and resinification of carbohydrates by mineral acids as found by Hilpert and Littmann, the authors have repeated and extended some of their experiments. Fucose, which occurs in seaweed, and cellobiose showed no "lignin." For the other carbohydrates the "lignin" values are on the whole in agreement with the results of Hilpert and Littmann. They show considerable variation with changes in strength of acid and variation of temperature.—C.J.W.

Studies on Lignin and Related Compounds. XX. Methanol Lignin and Its Relation to the So-called "Primary Lignin" of Friedrich and Diwald. E. G. King and Harold Hibbert. Can. J. Research 14B: 12-19 (1936).—Pretreatment of spruce wood meal with cold 5 per cent sodium hydroxide decreases the amount of lignin extractable with methanol and anhydrous hydrgen chloride. (Hibbert - Brauns method). Such a prior treatment of the wood meal, either in an atmosphere of nitrogen or of air, apparently causes no structural change in the lignin as judged by the methoxyl content. The method of Friedrich and Diwald, which involves a preliminary treatment with 17 per cent hydrochloric acid followed by addition of a hot alcohol, represents a much more drastic process than the Hibbert-Brauns method, as is indicated by the darker color, lower methoxyl content, and behavior towards 8 to 10 per cent alkali of the isolated lignin. Methanol lignin isolated from a resin-free spruce wood meal, previously subjected to treatment with 5 per cent cold alkali in the presence or absence of air, shows no loss of methoxyl groups on treatment with 8 to 10 per cent alkali; the same is true of the "primary lignin" prepared by the method of Friedrich and Diwald; in both cases the lignin is insoluble in sodium bicarbonate. These facts show that neither methanol lignin nor "native lignin" contains ester methoxyl groups, as assumed by Friedrich and Diwald. Prolonged treatment of methanol lignin with alkali in the presence of air, especially at higher temperature, apparently brings about certain changes in structure, including possibly the formation of carboxyl groups. The claim of Friedrich and Diwald that their product represents an "unchanged native lignin" is not in accordance with the facts, and their assumption of the presence of carboxyl groups in native lignin is incorrect.—A.P.-C.

Studies on Lignin and Related Compounds. XXI. Insoluble Methanol Lignin. Herbert W. Mackinney and Harold Hibbert. Can. J. Research 14B: 55-64 (1936).—When spruce wood meal is extracted with anhydrous methyl alcoholic hydrogen chloride, about 30 per cent of the lignin can be removed in soluble form. The insoluble lignin in the residual wood can be isolated as a fully methylated derivative by a prior complete methylation with dimethyl sulphate followed by hydrolysis with methyl alcoholic hydrogen chloride. The fully methylated insoluble methonal lignin is insoluble in organic solvents. Demethylation experiments followed by subsequent treatment with methylating and acetylating agents, alone or combined, have established a very close relation between the insoluble and soluble forms. The formation of the insoluble form from the native lignin is accompanied by loss of one hydroxyl group as indicated in the two formulae: soluble methanol lignin $C_{42}H_{32}O_6(OCH_3)_6(OH)_4$, and insoluble methanol lignin (fully methylated) $C_{42}H_{32}O_6(OCH_3)_9$. The new evidence obtained indicates that of the five methoxyl groups present in the original native lignin, at least three are phenolic or enolic in character.—A.P.-C.

Lignin and Related Compounds. XXVIII. The Behavior of Lignin Toward Activated Hydrogen. R. G. D. Moore and Harold Hibbert. Can. J. Research 14B: 404-407 (1936).—Methylated methanol lignin prepared from fully methylated spruce wood meal was subjected, at relatively low temperatures and pressures, to the action of hydrogen in the presence of catalysts, and under conditions such that reduction of open-chain ethylenic linkages readily occurs. Entirely negative results were obtained. This points to the absence of ethylene linkages in the lignin building unit.—A.P.-C.

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Sulphate Pulping of Southern Yellow Pines Effect of Growth Variables on Yield and Pulp Quality*

By Mark W. Bray,[1] and C. E. Curran[2]

Abstract

The conditions under which coniferous woods are grown materially affect the physical and chemical properties of the wood in the tree and these different wood properties, in turn, affect the quality of the pulps obtained therefrom. Often greater differences are noticed in the pulps obtained from different parts of the same tree than from wood of different species and growth rate. This fact is of particular value to the management of the second-growth stands of the south where utilization of pulp looms large and where planning for integrated land use is a factor of major importance.

The results of the pulping experiments obtained through examination of the four major southern pine species—longleaf, shortleaf, slash, and loblolly —showed that in chemical pulping of the normal wood the most important single factor is the ratio of springwood to summerwood. The fiber characteristics of these two types of wood vary markedly and in turn influence the processing required and the nature of the pulp produced.

Introduction

Though the basic pulping variables play an important part in wood pulp preparation, the physical and chemical properties of the raw material perhaps play an even greater role in securing uniformity of yield and quality in the finished product. The coarse tubular fibers of summerwood, although highly resistant to tear do not lend to evenness of formation, smoothness of surface, and printability of a sheet as do the broad, flat, flexible ribbon-like fibers of springwood. The proper selection of raw material is, therefore, as essential to pulp usability and uniformity of product as cooking and subsequent processing of the fibers.

The experiments herein presented were undertaken at the Forest Products Laboratory in order to obtain exact information on the extent growth conditions, as they exist in different types of forests, affect the yield and quality of pulps produced by the sulphate process. For comparative purposes, the cooking conditions, approximating commercial operation in indirect heating systems, were maintained the same for all the experiments herein reported.

Selection and Evaluation of Raw Material

The wood selected for the pulping experiments consisted of entire trees of rapid and slow growth material taken from typical stands of the four major species; long-leaf (*palustris*), shortleaf (*echinata*), slash (*caribeae*), and loblolly (*taeda*) pines growing in southern Louisiana and Mississippi.

The trees consisting of both concentric and eccentric growth material were selected and cut in March and shipped within a few days after sawing into 5-foot lengths to the Forest Products Laboratory at Madison, Wisconsin. The logs were painted with a chemical to prevent blue staining and with hardened gloss oil to retard moisture losses in transit. Upon their arrival within the same month the logs were immediately evaluated[3] as to physical and chemical properties. The physical evaluation data on the four species are recorded in Table I and the chemical data on whole trees representing rapid and slow growth material of the four species are recorded in Table II.

The chemical evaluation data showed only small differences in the wood of the four species but these differences are in general reflected in the yield of pulp obtained. The samples of shortleaf pine of both rapid and slow growth were high in cellulose and alpha-cellulose and low in lignin and extractives in comparison with the wood of some of the other species.

The growth rate, springwood content, density, and certain other properties of the four species change

* Presented (by title) at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, DeSoto Hotel, Savannah, Ga., Oct. 18-21, 1937.

[1] Member TAPPI, Senior Chemist, Forest Products Laboratory, Forest Service, U. S. Dept. Agriculture, Madison, Wis.

[2] Member TAPPI, Principal Chemist, Forest Products Laboratory.

[3] Detailed evaluation data on additional samples of these four species are given in Forest Products Laboratory Typewritten Report L 168-5, by Pew, Schafer, and Knechtges.

TABLE II.--CHEMICAL ANALYSIS OF FOUR SPECIES SOUTHERN YELLOW PINE PULP WOOD—SHIPMENT 1469

Tree	Species	Growth rate class	Cellulose, Per cent	Alpha cellulose, Per cent	Lignin, Per cent	Pentosans: Total Per cent	Pentosans: In cellulose, Per cent	Solubility in: Alcohol-benzene, Per cent	Solubility in: Ether, Per cent	Solubility in: 1 per cent sodium hydroxide, Per cent	Solubility in: Hot water, Per cent
AA	Longleaf	Fast	58.8	44.3	27.9	12.4	10.2	4.3	2.9	11.1	2.4
FF	Longleaf	Slow	57.7	44.8	28.7	11.0	9.0	5.2	3.4	12.8	2.1
B	Shortleaf	Fast	62.2	47.2	26.4	12.1	9.5	3.0	2.3	11.2	2.1
F	Shortleaf	Slow	62.9	48.0	27.0	11.8	8.6	3.3	2.0	10.1	1.6
R	Slash	Fast	60.5	45.7	27.3	12.3	8.5	2.7	1.4	11.2	1.9
Q	Slash	Slow	62.3	47.9	26.5	11.0	7.6	3.5	2.2	11.7	2.4
Z	Loblolly	Fast	59.3	43.3	28.1	12.6	9.3	3.8	2.5	13.4	3.1
LL	Loblolly	Slow	61.4	46.9	27.5	12.6	8.6	2.3	1.1	10.0	1.3

TABLE I.—PHYSICAL EVALUATION DATA ON FOUR SPECIES OF SOUTHERN YELLOW PINE PULPWOOD—SHIPMENT 1469

Tree and log[1], Number	Relative height above stump[2], Per cent	Age, Years	Non-volatile, Per cent	Specific gravity[3]	Density[3], Lbs. per cu. ft.	Disc data: Proportion by volume: Spring-wood, Per cent	Heart-wood, Per cent	Compression wood: Mild, Per cent	Compression wood: Pronounced, Per cent	Rate of growth: Radial reciprocal, Rings per inch	Rate of growth: Uniformity[4], Per cent	Diameter: Disc, Inches	Diameter: Pith, Inches	Eccentricity[5]: Maximum distance, Ins.	Eccentricity[5]: Relative distance, Per cent	Log data: Knots[6]: Small, Number	Knots[6]: Medium, Number	Knots[6]: Large, Number	Tree data: Length of logs, Feet-Ins.	Height: Total, Feet	Height: To first live branch, Feet	Width of crown, Feet
LONGLEAF—RAPID GROWTH																						
AA-1[7]	0	32	49.9	0.500	31.2	54	5.0	0	0	5.6	34	11.3	0.23	0.4	4	0	0	0	4—0	55	27	24
2	8	28	48.3	.490	30.6	52	3.6	0	0	5.6	22	9.8	.18	.5	5	0	0	0				
3	17	26	47.6	.464	29.0	57	3.9	0	0	5.5	22	9.6	.26	.2	2	2	1	0				
4	25	24	44.4	.441	27.5	56	4.5	0	0	5.1	27	9.3	.20	.2	2	4	1	0				
5	33	21	44.2	.430	26.8	63	3.6	0	0	4.8	29	8.9	.25	.3	3	2	2	0				
6	42	20	43.6	.420	26.2	64	3.0	0	0	4.7	32	8.5	.20	.3	3	0	5	1				
7	50	19	42.7	.412	25.7	65	2.6	0	0	4.8	25	8.0	.24	.1	2	1	1	2				
8	58	18	41.3	.402	25.1	66	3.5	0	0	4.6	39	7.8	.27	.3	4	3	3	2				
9	67	16	41.1	.397	24.8	67	2.3	0	0	4.2	30	7.5	.13	.1	1	2	1	5				
10	75	15	40.2	.397	24.8	66	1.8	0	0	5.0	18	6.0	.22	.2	3	2	0	3				
11	Log missing from shipment.																					
12	92	11	43.0	.420	26.2	58	.0	17	0	4.6	25	4.8	.16	.2	4	2	1	3				
12T	100	8	39.8	.396	24.7	75	.0	0	0	4.5	19	3.6	.15	.1	4	..	..	..				
8-1	0	23	50.4	.546	34.1	48	1.4	26	0	5.8	35	8.0	.12	1.3	15	4	0	0	5—2	45	25	20
2	17	19	49.6	.521	32.5	52	.9	23	0	5.3	30	7.2	.13	.7	9	9	1	0				
3	33	17	47.6	.479	29.9	57	1.6	0	0	4.9	21	7.0	.14	.5	7	5	2	2				
4	50	14	45.1	.474	29.6	62	.7	0	0	4.6	22	6.1	.23	.3	6	2	2	1				
5	67	12	43.1	.456	28.4	59	.0	17	0	4.6	22	5.2	.23	.3	6	0	1	3				
6	83	10	47.8	.449	28.1	57	.0	0	18	4.8	28	4.2	.15	.4	8	3	4	1				
6T	100	6	44.3	.436	27.2	56	.0	0	0	4.0	29	3.0	.20	.0	0	..	..	..				
LONGLEAF—SLOW GROWTH																						
FF-1[7]	0	89	60.7	.652	40.7	28	11.6	0	0	16.4	41	11.1	.10	.5	5	0	0	0	5—2	60	40	16
2	1[8]	81	59.1	.611	38.2	45	12.6	32	0	16.9	38	10.0	.16	1.3	13	0	0	0				
3	26	79	56.7	.582	36.3	45	12.5	18	0	17.3	33	9.4	.15	1.0	11	0	0	0				
4	30	72	55.6	.570	35.6	51	10.0	14	0	15.9	30	9.0	.14	.5	6	0	0	0				
5	40	70	53.2	.558	34.9	53	8.9	0	20	16.7	29	8.5	.17	.7	8	0	0	0				
6	50	68	51.5	.539	33.7	53	7.9	13	0	17.1	21	8.0	.15	.4	5	1	0	0				
7	60	63	50.3	.522	32.6	56	7.2	16	0	16.6	10	7.7	.16	.4	5	1	1	0				
8	70	57	48.9	.510	31.8	59	5.4	26	0	16.4	31	7.2	.16	1.3	18	6	1	0				
9	80	49	45.8	.470	29.4	61	3.7	9	0	15.4	21	6.4	.15	.2	2	3	1	3				
10	90	38	42.7	.445	27.8	62	.0	5	0	14.8	23	5.2	.12	.4	7	3	3	2				
10T	100	31	40.1	.419	26.2	70	.0	6	0	13.8	31	4.7	.17	.2	3	..	..	..				
EE-1[8]	0	105	53.8	.594	37.1	47	10.8	35	0	13.8	59	15.1	.12	1.7	9	0	0	0	5—2	68	31	20
2	8	97	50.4	.580	36.2	52	10.4	33	0	14.8	57	13.3	.17	1.1	8	0	0	0				
3	17	93	54.1	.565	35.3	55	11.0	24	0	14.8	43	12.6	.18	1.0	7	0	0	0				
4	25	88	53.7	.556	34.7	57	11.8	21	0	14.6	38	12.2	.14	1.1	9	0	1	0				
5	33	85	51.8	.541	33.8	57	11.4	30	0	15.0	40	11.5	.15	1.7	14	0	0	0				
6	42	79	49.6	.526	32.8	61	11.6	24	0	14.9	30	10.8	.16	1.2	11	0	0	4				
7[7]	50	74	47.8	.504	31.5	64	13.5	0	0	15.1	23	9.9	.14	.5	5	0	0	0				
8	58	68	48.1	.497	31.0	66	9.4	17	0	14.9	24	9.5	.16	1.0	11	0	0	3				
9	67	62	45.5	.467	29.2	68	7.7	15	0	14.6	26	8.7	.14	1.0	11	3	3	4				
10	75	54	44.8	.463	28.9	69	7.3	9	0	14.1	29	7.8	.08	1.3	16	1	4	4				
11	83	47	43.4	.445	27.8	70	3.3	0	0	14.5	19	6.5	.12	.3	5	4	3	2				
12	92	40	41.8	.433	27.0	74	1.8	0	0	15.3	29	5.3	.08	.3	5	3	3	2				
12T	100	37	41.2	.410	25.6	83	.7	0	0	12.2	23	4.2	08	.1	3	..	..	..				
SHORTLEAF—RAPID GROWTH																						
B-1	0	36	51.5	.550	34.4	50	1.0	6	0	6.3	49	11.4	.04	.3	2	0	0	0	5—2	52	33	24
2	13	32	47.1	.484	30.2	54	1.2	21	0	7.1	34	9.1	.08	.4	4	0	0	0				
3	25	27	43.6	.442	27.6	64	1.1	0	0	6.2	29	8.9	.07	.2	3	2	7	0				
4	38	23	40.7	.414	25.9	67	.7	0	0	5.3	37	8.5	.06	.3	4	2	12	0				
5	50	18	39.4	.393	24.5	69	.2	0	0	4.8	33	7.8	.06	.3	4	2	5	1				
6	63	16	42.8	.405	25.3	68	.0	0	0	4.9	24	7.1	.04	.1	2	1	6	1				
7	75	14	40.7	.395	24.7	72	.0	0	0	5.3	52	5.8	.07	.2	3	2	5	4				
8	88	12	46.6	.391	24.4	74	.0	0	0	4.4	32	4.7	.06	.1	3	0	6	4				
8T	100	7	40.0	.376	23.5	78	.0	0	0	4.8	19	3.2	.08	.1	2	..	..	..				
C-1	0	35	51.0	.544	34.0	55	3.9	0	9	6.1	51	11.4	.07	.6	6	0	0	0	5—2	53	30	24
2	11	30	48.5	.506	31.6	57	3.5	0	0	6.2	28	9.7	.08	.4	4	0	0	0				
3	22	27	45.3	.462	28.8	62	4.2	21	0	5.8	26	9.2	.06	.3	3	0	0	0				
4	33	23	42.8	.444	27.8	64	3.7	25	0	5.2	31	8.9	.04	.5	5	0	6	0				
5	44	21	40.7	.414	25.9	68	2.1	12	0	5.1	25	8.2	.06	.1	1	1	5	5				
6	55	18	40.6	.405	25.3	67	.5	15	0	4.9	23	7.5	.07	.2	3	0	5	3				
7	67	14	40.6	.418	26.1	69	.0	0	0	4.2	27	6.6	.05	.1	1	1	5	3				
8	78	12	41.9	.406	25.4	72	.0	0	0	4.1	12	5.9	.06	.3	5	1	2	7				
9	89	8	42.0	.420	26.2	74	.0	0	0	3.9	28	4.3	.05	.1	2	3	3	2				
9T	100	7	41.5	.405	25.3	78	.0	0	0	3.8	21	3.7	.05	.0	0	..	..	..				
SHORTLEAF—SLOW GROWTH																						
F-1	0	74	56.7	.577	36.0	46	8.6	0	0	12.0	24	12.1	.06	.8	6	0	0	0	5—2	53	20	30
2[9]	13	66	50.3	.528	33.0	48	8.6	0	0	11.7	16	11.2	.06	.2	2	0	1	0				
3[7,9]	25	60	48.7	.503	31.4	53	9.5	0	0	11.2	18	10.8	...	1.0	8	0	0	0				
4	38	55	47.2	.474	29.6	58	7.5	0	0	10.7	23	10.3	.04	.3	2	0	3	1				
5	50	49	47.7	.451	28.1	62	6.0	0	0	10.2	23	9.6	.07	.4	4	4	3	2				
6	63	43	42.2	.434	27.1	62	2.9	0	0	9.4	22	8.9	.06	.1	1	3	2	2				
7	75	37	47.4	.425	26.6	64	1.8	0	0	8.8	19	8.5	.06	.6	6	0	3	6				
8	88	31	46.4	.454	28.4	58	.6	0	38	8.8	42	7.3	.09	.9	11	3	0	3				
8T	100	26	43.0	.432	27.0	61	.2	0	24	10.0	29	5.3	.05	.7	13	..	..	..				
J-1	0	77	56.2	.594	37.1	47	5.1	0	0	12.8	57	12.6	.05	1.7	13	0	1	0	5—2	57	33	20
2	9	74	54.9	.589	36.8	48	5.6	32	0	13.2	57	11.3	.06	.8	7	0	0	0				
3	18	68	55.1	.568	35.5	54	7.0	0	0	11.8	31	11.1	.05	.7	6	0	0	0				
4	27	59	55.4	.544	34.0	54	6.2	37	0	10.1	23	11.2	.05	1.6	14	2	0	0				
5	36	50	50.0	.503	31.4	56	6.3	0	0	9.0	22	10.5	.05	.5	4	4	0	0				
6	45	42	46.8	.483	30.2	61	5.3	0	0	8.2	12	10.1	.04	.2	2	9	1	0				
7	55	38	44.7	.454	28.4	67	3.7	0	0	7.9	15	9.6	.06	.2	2	7	4	1				
8	64	34	43.6	.439	27.4	68	1.8	0	0	7.4	16	9.2	.04	.4	4	5	2	5				
9	73	27	41.7	.431	26.9	67	.5	0	0	6.6	20	8.1	.04	.3	4	2	5	4				
10	82	22	41.4	.423	26.4	73	.3	0	0	6.0	21	7.2	.06	.4	5	0	1	8				
11	91	16	41.8	.425	26.5	67	.3	0	0	5.9	19	5.6	.06	.1	2	4	3	3				
11T	100	12	40.8	.425	26.5	71	.0	0	0	5.8	20	4.3	.06	1	3	..	..	..				

TABLE I—Continued—PHYSICAL EVALUATION DATA ON FOUR SPECIES OF SOUTHERN YELLOW PINE PULPWOOD—SHIPMENT 1469

Tree and log [1], Number	Relative height above stump [2], Per cent	Age, Years	Non-volatile, Per cent	Specific gravity [3]	Density [3], Lbs. per cu. ft.	Disc data: Proportion by volume: Spring-wood, Per cent	Heart-wood, Per cent	Compression wood: Mild, Per cent	Compression wood: Pronounced, Per cent	Rate of growth: Radial, reciprocal, Rings per inch	Rate of growth: Uniformity [4], Per cent	Diameter: Disc, Inches	Diameter: Pith, Inches	Eccentricity [5]: Maximum distance, Ins.	Eccentricity [5]: Relative distance, Per cent	Log data: Knots [6]: Small, Number	Knots [6]: Medium, Number	Knots [6]: Large, Number	Tree data: Height: Length of logs, Feet-Ins.	Height: Total, Feet	Height: To first live branch, Feet	Width of crown, Feet
SLASH—RAPID GROWTH																						
R-1	0	16	54.0	.544	34.0	39	.0	3	0	3.3	22	9.6	.07	.6	6	2	0	0	5—2	50	20	20
2	14	15	49.2	.498	31.1	48	.3	6	0	3.6	23	8.5	.16	.0	0	1	5	3				
3	29	13	46.4	.468	29.3	53	.2	4	0	3.2	20	8.1	.17	.1	1	1	4	7				
4	43	11	44.2	.444	27.8	59	.0	0	0	2.8	16	7.9	.18	.2	2	0	0	10				
5	57	9	44.1	.449	28.0	53	.0	0	0	2.7	22	6.8	.18	.2	4	0	0	5				
6	71	7	44.6	.438	27.4	62	.0	0	0	2.4	27	6.0	.22	.1	1	1	0	8				
7	86	5	42.3	.431	26.9	64	.0	0	0	2.3	23	4.4	.20	.1	2	1	0	6				
7T	100	4	40.7	.408	25.5	66	.0	11	0	2.4	28	3.4	.26	.2	5	..	..	..				
O-1	0	21	53.2	.523	32.7	42	.1	6	0	4.5	26	9.6	.03	.5	5	0	0	0	5—2	56	31	16
2	13	18	52.2	.559	34.9	47	.5	0	0	5.0	17	7.2	.08	.4	6	3	1	2				
3	25	16	50.4	.536	33.5	52	.6	0	0	4.8	17	6.8	.12	.1	2	6	6	0				
4	38	14	47.2	.494	30.9	58	.2	0	0	4.2	22	6.7	.15	.3	5	3	3	0				
5	50	13	44.4	.445	27.8	61	.2	0	0	4.1	20	6.4	.14	.3	5	5	9	0				
6	63	11	43.7	.440	27.5	66	.0	0	0	3.8	26	5.8	.22	.2	4	5	5	3				
7	75	9	42.2	.421	26.3	66	.0	0	0	3.5	31	5.3	.14	.2	5	1	4	5				
8	88	7	42.4	.432	27.0	70	.0	0	0	3.1	36	4.5	.16	.1	2	2	3	5				
8T	100	7	40.6	.421	26.3	70	.0	0	0	3.5	23	4.1	.17	.1	3	..	..	..				
SLASH—SLOW GROWTH																						
Q-1	0	69	55.8	.563	35.2	36	6.6	0	0	12.3	13	11.2	.07	.6	5	0	0	0	5—2	54	42	20
2	11	65	53.6	.555	34.7	51	8.6	2	0	13.4	12	9.2	.08	.7	7	0	0	0				
3	22	58	53.2	.525	32.8	53	4.9	0	0	13.7	10	8.8	.10	.7	8	0	0	0				
4	33	50	50.1	.497	31.0	57	7.2	0	0	12.1	12	8.4	.22	.3	4	0	1	1				
5	44	47	49.3	.498	31.1	58	7.6	0	0	12.3	14	7.8	.10	.5	6	0	1	0				
6	55	42	48.3	.467	29.2	61	6.3	0	0	11.8	14	7.1	.17	.2	3	2	2	1				
7	67	40	46.5	.448	28.0	62	5.2	0	8	12.1	12	6.6	.16	.2	3	2	4	4				
8	78	36	46.7	.454	28.4	60	2.9	0	11	11.8	10	6.2	.12	.2	3	2	1	5				
9	89	31	44.3	.450	28.1	67	.8	0	19	12.8	12	4.9	.26	.3	6	1	1	6				
9T	100	17	42.3	.423	26.4	70	.0	0	0	10.7	19	3.2	.14	.1	3	..	..	..				
U-1	0	89	62.3	.648	40.4	29	19.6	23	0	14.2	11	12.6	.04	1.5	11	0	0	0	5—2	80	65	18
2	7	83	61.7	.622	38.9	40	21.3	0	0	15.2	7	11.0	.07	1.0	9	0	0	0				
3	14	77	60.1	.609	38.0	43	23.6	22	0	14.4	7	10.7	.10	1.0	9	0	0	0				
4	21	72	59.9	.598	37.4	48	21.6	23	0	14.0	14	10.5	.12	1.4	12	0	0	0				
5	29	69	59.4	.590	36.8	55	21.0	7	0	14.0	9	10.0	.13	1.5	14	0	0	0				
6	36	66	57.4	.573	35.8	52	20.6	9	0	14.2	9	9.5	.11	1.5	15	0	0	0				
7	43	64	57.4	.564	35.2	52	19.6	14	0	14.1	9	9.2	.12	1.4	14	0	0	0				
8	50	60	56.2	.553	34.6	56	17.5	8	0	13.7	8	8.8	.16	1.0	11	0	0	0				
9	57	54	54.2	.541	33.8	55	14.7	8	0	13.1	9	8.5	.12	1.2	14	0	3	1				
10	64	48	52.9	.535	33.4	54	9.8	6	0	12.5	10	7.9	.17	.3	3	0	0	1				
11	72	40	53.1	.538	33.6	55	7.6	22	0	10.5	10	7.8	...	1.2	14	1	3	0				
12	79	36	49.3	.493	30.8	62	6.1	11	0	10.6	15	6.9	.15	.5	7	2	6	1				
13	86	33	48.2	.483	30.2	65	4.5	0	0	10.6	13	6.3	.20	.1	2	0	2	4				
14	93	30	44.6	.451	28.1	71	3.0	0	0	11.6	10	5.3	.17	.2	4	1	5	3				
14T	100	26	42.6	.425	26.5	70	1.0	0	0	11.7	6	4.4	.23	.2	7	..	..	..				
LOBLOLLY—RAPID GROWTH																						
2-1	0	26	48.8	.494	30.9	46	.9	15	0	2.5	40	20.7	.03	1.3	6	0	0	0	5—2	62	20	40
2	11	23	44.8	.564	29.0	52	1.0	18	0	2.6	31	17.6	.21	1.3	7	0	1	1				
3	22	20	42.7	.429	26.8	61	.8	29	0	2.5	31	16.6	.10	1.2	7	0	2	6				
4	33	18	41.7	.423	26.4	65	.4	13	0	2.5	25	14.8	.20	1.4	10	0	3	2				
5	44	17	40.4	.406	25.3	67	.2	0	0	2.4	23	14.0	.05	.5	4	0	0	6				
6	55	15	42.8	.412	25.7	68	.1	0	0	2.3	24	13.5	.06	1.6	11	0	0	8				
7	67	14	40.6	.411	25.7	66	.1	0	0	2.5	22	11.1	.11	.2	2	1	0	6				
8	78	11	40.9	.414	25.9	70	.0	0	0	2.4	21	9.2	.16	.5	5	1	0	5				
9	89	10	41.2	.409	25.6	67	.0	17	0	2.7	20	7.6	.16	.2	3	0	0	6				
9T	100	10	41.2	.416	26.0	64	.0	22	0	3.4	13	6.0	.17	.3	6	..	..	..				
4-1	0	22	43.0	.443	27.7	52	.8	16	0	3.0	33	15.6	.04	1.4	8	1	0	0	5—2	46	14	28
2	20	19	43.1	.447	27.9	51	.5	27	0	2.7	32	13.0	.08	.4	3	1	3	5				
3	40	16	41.6	.428	26.7	65	.1	24	0	2.7	31	11.7	.06	.3	3	2	2	4				
4	60	12	39.7	.403	25.2	69	.0	0	0	2.3	28	10.3	.16	.4	4	3	1	6				
5	80	11	42.5	.388	24.2	71	.0	0	0	2.3	32	9.5	.16	.4	4	2	3	7				
5T	100	10	39.5	.380	23.9	78	.0	0	0	2.6	24	8.1	.13	.2	2	..	..	..				
LOBLOLLY—SLOW GROWTH																						
LL-1	0	52	52.5	.540	33.7	42	3.2	0	3	7.7	20	13.2	.03	1.1	8	0	0	0	5—2	69	41	24
2	9	49	52.8	.529	33.1	47	2.7	0	3	8.5	23	11.4	.05	.4	3	0	0	0				
3	8	47	49.6	.508	31.8	53	3.2	0	2	8.6	23	11.0	.06	.5	4	0	0	0				
4	27	44	48.7	.492	30.7	55	4.0	0	2	8.1	22	10.8	.12	.4	3	0	0	0				
5	36	41	47.9	.479	29.9	59	3.4	22	0	7.7	20	10.7	.07	.9	8	0	0	0				
6	45	38	46.1	.459	28.7	61	4.5	18	0	7.4	27	10.3	.06	.4	4	1	1	0				
7	55	36	44.2	.434	27.1	69	4.1	0	0	7.6	26	9.5	.07	.3	3	2	1	3				
8	64	33	44.7	.420	26.2	68	2.7	0	0	7.6	21	8.7	.11	.1	1	4	3	1				
9	73	30	41.0	.409	25.6	69	2.3	0	0	7.5	20	8.1	.08	.1	2	4	4	5				
10	82	28	41.7	.408	25.5	72	.5	0	0	7.9	12	7.1	.08	.2	3	3	2	5				
11	91	18	43.4	.426	26.6	68	.0	0	18	6.6	34	5.4	.06	.3	5	5	2	5				
11T	100	12	...	.397	24.8	77	.0	0	0	5.9	9	4.1	.11	.1	3	..	..	..				

[1] All discs were cut from near the bottom ends of the logs except those marked with a "T" which were cut from the top ends. Log data may be obtained from the disc data by averaging the values for the appropriate discs.
[2] Based on merchantable length.
[3] Based on oven-dry weight, green volume.
[4] Based on perfect uniformity of growth (i.e., no deviation from average rate of growth) equal to 0.
[5] The eccentricity in inches was measured on the diameter (passing through the pith) on which the distance between pith and the midpoint of the diameter was the greatest. Relative eccentricity expressed as the percentage this distance bore to the whole diameter.
[6] Knots less than 1-inch in diameter are considered small, 1 inch to 2 inches medium, and above 2 inches large.
[7] These discs had amounts of pitchy sapwood as follows: AA-1....7.2 per cent, EE-7....3.3 per cent, FF-1....8.2 per cent, FF-10....3.7 per cent, FF-10T....6.4 per cent, F-3....2.0 per cent by volume.
[8] These discs had amounts of pitchy heartwood as follows: EE-1....10.8 per cent, FF-2....1.7 per cent by volume.
[9] These discs had amounts of heart rot as follows: F-2....2.5 per cent, F-3....2.9 per cent by volume.

materially between the butt log and the top of the tree. This fact is illustrated by Fig. 1, which shows the ends of logs taken at various heights from typical rapid-growing and slow-growing southern pine. The butt log of the slow-growth wood contains only 42 per cent of the light-colored springwood and has a density of 35 pounds per cubic foot, whereas the top log contains 69 per cent of springwood and has a density of only 26 pounds per cubic foot. Even greater differences are sometimes noticed in rapid-growth material. In the butt log of the tree shown there is 56 per cent of springwood with a density equal to that of the slow-growth wood. Proceeding up the tree, the bands of springwood became wider and the percentage increases to 81 per cent at the top. On the other hand, density decreases from 35 to 25 pounds per cubic foot. Fig. 2 which is a photomicrograph of a cross section of southern pine, shows the differences in thickness of the cell walls and middle lamella of these two types of wood. This difference in cell wall thickness materially affects the properties of the resulting pulps and papers, especially the surface, strength, and sheet characteristics. Fig. 3 illustrates these differences in sheet properties. In processing, the thin-walled springwood fibers collapse to ribbon-like fibers forming dense, well-knit sheets, whereas the stiff thick-walled fibers of summerwood retain their tubular shape, forming coarse textured sheets, entirely different in properties. Therefore, in selecting material for the pulping experiments described here, logs were taken from the butt portion, the middle or approximate center of gravity of the tree, and from the top of the tree, representing different amounts of springwood, density, and growth rate. In each case, these different portions were pulped separately. In addition, further experiments were conducted on an abnormal type of wood known as compression wood. This wood occurs frequently in rapid growing conifers and differs markedly from normal wood in chemical composition, in physical properties, and in pulping characteristics. It invariably results in lower yields of weaker pulps, which, even though reduced to a lower yield, are less pure (contain more lignin) and have an exorbitant bleach requirement. Compression fibers are formed when (1) prevailing winds put the trees

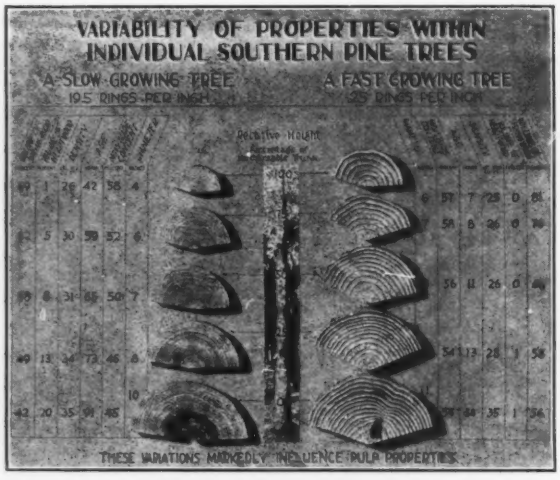
VARIABILITY OF PROPERTIES WITHIN INDIVIDUAL SOUTHERN PINE TREES
A SLOW-GROWING TREE
19.5 RINGS PER INCH
A FAST GROWING TREE
THESE VARIATIONS MARKEDLY INFLUENCE PULP PROPERTIES

FIG. 1.
Variability of properties within individual southern yellow pine trees.

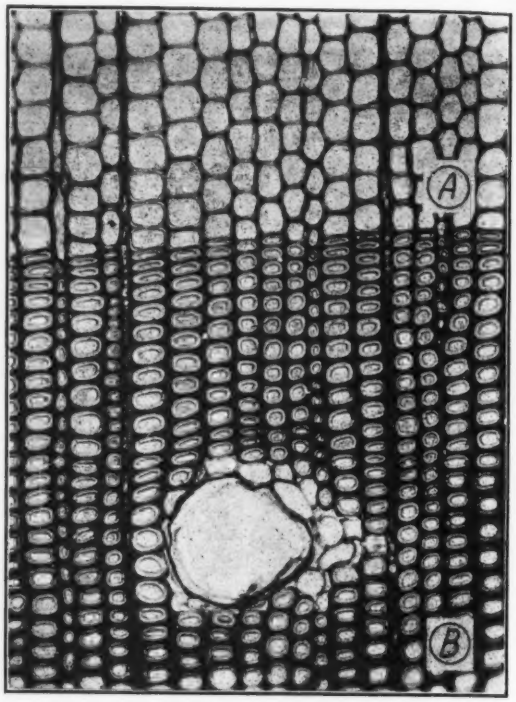

FIG. 2.
Cross section of southern yellow pine (*Pinus echinata*) showing difference in (A) springwood and (B) summerwood fibers.

under a constant tension, (2) in leaning trees, (3) in trees of eccentric growth, (4) on the under side of branches, (5) or under any condition of stress which may occur in growth. In the southern pines frequent

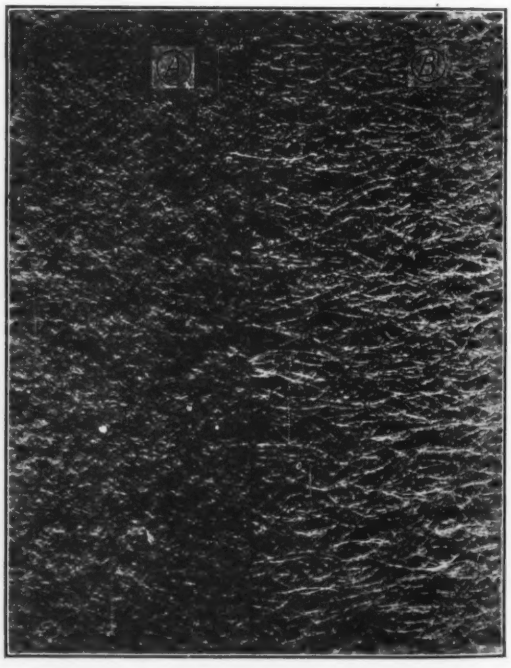

FIG. 3.
Surface characteristics of two sulphate pulps from (A) springwood and (B) summerwood fibers.

TABLE III.—SUMMARY OF YIELD DATA IN PULPING FOUR SPECIES OF SOUTHERN YELLOW PINE SHOWING THE EFFECT OF SPRINGWOOD—SUMMERWOOD RATIO AND GROWTH RATE ON THE YIELD OF SULPHATE PULPS OBTAINED UNDER IDENTICAL COOKING CONDITIONS.

	Longleaf								Shortleaf								Slash								Loblolly							
					Pulp Yield							Pulp Yield							Pulp Yield							Pulp Yield						
Tree	Log No.	Location in Tree	Springwood Content (Percent)	Density (Lbs./cu. ft.)	Screened	Screenings	Total	Tree	Log No.	Location in Tree	Springwood Content (Percent)	Density (Lbs./cu. ft.)	Screened	Screenings	Total	Tree	Log No.	Location in Tree	Springwood Content (Percent)	Density (Lbs./cu. ft.)	Screened	Screenings	Total	Tree	Log No.	Location in Tree	Springwood Content (Percent)	Density (Lbs./cu. ft.)	Screened	Screenings	Total
													RAPID GROWTH—CONCENTRIC																		
A-A	8-9							B	6-7								5-6													
A-A	10-12	Top	66	25.1	46.4	0.7	47.1	B	8	Top	72	24.5	48.8	0.3	49.1	R	7	Top	60	26.9	47.7	0.4	48.1	L-L	10-11	Top	72	25.6	45.3	0.6	45.9
A-A	4	Mid.	59	27.2	47.7	0.3	48.0	B	3	Mid.	65	26.8	50.2	0.1	50.3	R	3	Mid.	56	28.6	48.2	0.5	48.7	L-L	4	Mid.	57	30.3	48.5	0.1	48.6
A-A	1	Butt	53	30.9	47.3	0.8	48.1	B	1	Butt	52	32.3	49.7	0.6	50.3	R	1	Butt	44	32.6	47.4	2.6	50.0	L-L	1	Butt	45	33.4	48.7	0.2	48.9
													RAPID GROWTH—ECCENTRIC																		
8	5-6	Top	57	27.9	45.7	0.5	46.2	C	8-9	Top	75	25.6	47.2	0.4	47.6	O	7-8	Top	69	26.5	49.2	0.4	49.6		5	Top	75	24.0	49.2	0.4	49.6
8	3	Mid.	60	29.8	46.6	0.2	46.8	C	4	Mid.	66	26.9	49.3	0.4	49.7	O	3	Mid.	55	32.2	50.0	0.4	50.4		3	Mid.	67	26.0	50.2	0.5	50.7
8	1	Butt	50	33.3	49.2	0.8	50.0	C	1	Butt	56	32.8	49.3	0.8	50.1	O	1	Butt	45	33.8	49.9	0.8	50.7		1	Butt	52	27.8	46.6	3.1	49.7
																Comp. Wood	1-2	Butt	..	...	39.8	2.2	42.0								
													SLOW GROWTH—CONCENTRIC																		
F-F	9-10	Top	64	27.8	45.5	0.4	45.9	F	7-8	Top	61	27.3	45.8	0.5	46.3	Q	8-9	Top	66	27.6	45.3	0.6	45.9	L-L	10-11	Top	72	25.6	45.3	0.6	45.9
F-F	4	Mid.	52	35.6	48.6	0.2	48.8	F	4	Mid.	60	29.6	48.3	0.1	48.4	Q	4	Mid.	57	31.0	46.9	0.4	47.3	L-L	4	Mid.	57	30.3	48.5	0.1	48.6
F-F	1	Butt	37	39.5	45.6	0.7	46.3	F	1	Butt	47	36.0	49.5	0.6	50.1	Q	1	Butt	44	35.0	47.7	0.9	48.6	L-L	1	Butt	45	33.4	48.7	0.2	48.9
													SLOW GROWTH—ECCENTRIC																		
E-E	11-12	Top	76	26.8	46.9	0.4	47.3	J	10	Top	70	26.4	49.5	0.3	49.8	U	14	Top	71	27.3	47.4	0.3	47.7								
E-E	5	Mid.	59	33.3	46.6	0.3	46.9	J	5	Mid.	59	32.8	49.9	0.5	50.4	U	5	Mid.	53	36.4	49.4	0.6	50.0								
E-E	1	Butt	50	36.7	49.9	0.6	50.5	J	1	Butt	48	37.0	50.3	0.5	50.8	U	1	Butt	35	39.7	48.0	0.9	48.9								

evidence of compression wood is found in the butt logs. Such logs frequently differ markedly in pulping properties from those taken higher up in the same tree.

Pulping Experiments

Preparation of Material

The selected 5-foot bolts were hand-peeled and chipped in a two-knife, 48-inch in diameter chipper running at approximately 500 r.p.m. The ⅝-inch chips were screened on a shaker screen, where the knots, sawdust and over-sized material were rejected. The chips from a single bolt were thoroughly mixed and stored until used in air-tight cans placed in a room maintained at 40 deg. F. and 93 per cent relative humidity. Previous to pulping, the chips were sampled for moisture content.

Digestion Procedure

More than 150 digestions were made on the four species in spherical steam-jacketed autoclaves of 3.7 gallons capacity. All digestions were made in triplicate. The resultant mass of data is obviously too voluminous to be incorporated in this publication and the significant trends have, therefore, been shown by means of curves. The tabulated data, however, are on file at the Forest Products Laboratory and can be made available if desired. The ⅝-inch chips were cooked with a total of 20 per cent of their oven-dry weight of caustic soda and sodium sulphide in the ratio of two parts by weight of the former to one part of the latter. Thus the active or "effective" alkalinity of the cooking chemicals expressed as sodium hydroxide was 16.75 per cent of the weight of wood charged. The total concentration of the cooking liquors, including the moisture within the chips, was 50 grams per liter. The volume of the cooking liquors was 48 gallons per hundred pounds of oven-dry wood.

A linear temperature-pressure schedule was followed in the digestions, allowing 1½ hours to raise the temperature of the autoclave from that of the room to the maximum of deg. C. Previous penetration experiments have shown that this length of time is adequate to secure sufficient penetration of the cooking liquors to effect even cooking throughout.

After the chips had been held in the three digesters at the maximum temperature for an equal period, (1½ hours), the jacket-steam pressure was released and the autoclaves rapidly cooled to atmospheric pressure. The pulped chips were dumped on wire screens, washed to remove superficial spent liquors, and later broken up in a small vat by rapid agitation. Again the pulps were washed to remove the remaining spent liquors and then screened through a 12-cut flat screen. The screened pulps were pressed to approximately 33 per cent oven dryness, sampled for moisture, and weighed in closed vessels for the determination of yield. So as to have ample material for duplicate physical tests, the three similar digestions were combined by again agitating in water suspension. The combined mass was again pressed to 33 per cent oven dryness and stored in air tight cans until tested.

All calculations of chemicals and yields were based on the calculated weight of the oven-dry

chips charged. Bleach consumption, and the results of chemical analysis, on the other hand, were calculated on the weight of the oven-dry pulp tested.

Method of Testing the Pulps

The strength properties of the pulps were determined on test sheets prepared after processing 360-gram (oven-dry basis) portions in 23 liters of water for definite intervals in a 1½ pound standard testing beater provided with a 6,500-gram weight on the bedplate. Bleaching tests were made on the pulps by treating 15-gram samples by a single-stage method with known amounts of calcium hypochlorite solutions. The color of the bleached and unbleached pulps was determined by comparison with a standard white magnesia block in an Ives tint photometer.

Samples of the unbleached pulps were analyzed for their cellulose, alpha-cellulose, lignin, pentosan contents, and their chlorine absorbing power according to standard methods adopted by the Forest Products Laboratory.

Results and Discussion

Yield

Although there are some exceptions especially in slow-growth material, the highest yield of screened pulp for all four species was obtained from the approximate center of gravity of the tree. The greatest amount of screenings usually came from the butt logs. The lowest total yield of pulp was obtained from the top logs of the trees. (See Table III.) Rapid-growth material from all four species appeared to give higher yields of pulp than the slow-growth wood. Considering the species individually, the highest yield of pulp was obtained from shortleaf pine regardless of growth rate. Although the data obtained upon chemical analysis of the rapid and slow-growth wood from the four species indicate higher pulp yields from shortleaf in comparison with the others, this tendency may not persist in all trees of this species.

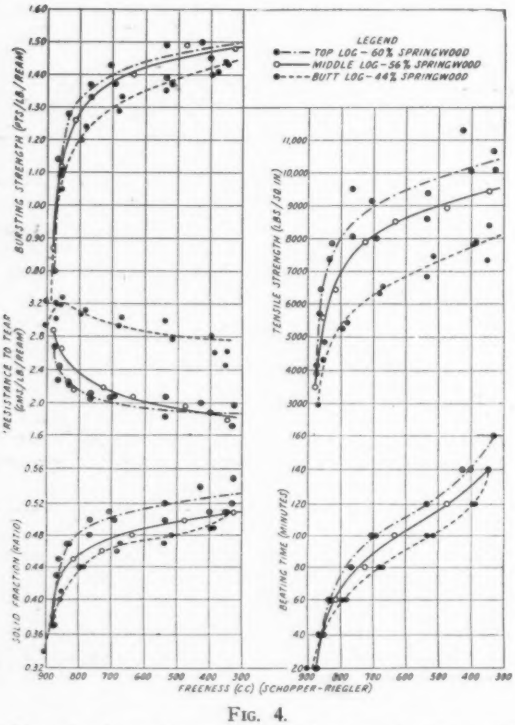

Fig. 4.

Effect of springwood—summerwood ratio on the strength properties of sulphate pulp from rapid growth slash pine.

Pulp Quality—Chemical

Under the cooking conditions chosen, the cellulose content of the pulps from the normal wood ranged between 89.3 and 94.2 per cent, averaging approximately 92.3 per cent. Average values of cellulose in the pulps from any of the species were not more than 0.5 per cent from this value. Following in the trend of pulp yield, the pulps prepared from logs taken from the middle and lower portions of the tree showed the highest cellulose content with the middle logs outstripping the butts two to one. Although there are some exceptions, the alpha-cellulose content of the pulps followed fairly closely the trend of cellulose. As would be expected from the cellulose trends, the lignin content of the pulps prepared from top logs was higher than in those made from the more central portions of the tree.

Although a sample of slash pine compression wood was reduced to a screened yield of 40 per cent in comparison with 48 to 50 per cent for the normal wood cooked under identical conditions, the cellulose and alpha-cellulose contents of the pulps from this abnormal wood were much lower and the lignin content much higher than pulps prepared from normal wood of the same species.

While the pulps were by no means raw, having screenings averaging much under 1 per cent, their bleach requirement would be considered rather high, with whiteness values (Ives blue reading) ranging between 40 and 50 parts blue, when bleached in a single stage with 25 per cent of their oven-dry weight of calcium hypochlorite solution. In general, the pulps from the upper and central portions of the tree, having the highest springwood content, showed the easiest bleaching characteristics.

Pulp Quality—Physical

Typical strength development curves for three sulphate pulps prepared from the top, middle, and butt portions of rapid-growth slash pine are recorded in Fig. 4. In these curves, certain of the strength properties, including bursting, tearing, and tensile strengths, as well as solid fraction or density of the processed pulp sheet and beating time, are plotted against drainage rate or freeness as measured by the Schopper-Riegler freeness tester. The data plotted in Fig. 4 show considerable differences in strength properties and bulkiness of the pulps prepared from the top, middle, and butt portions of a single tree. The pulps prepared from top-log material containing relatively high percentages of the flat ribbon-like fibers of springwood are higher in bursting and tensile strengths, have a greater solid fraction (density or compactness) and require a longer period of beating to attain a given freeness or slowness than pulps prepared from logs lower down in the tree. On the other hand, pulps prepared from butt logs containing a greater proportion of the thick-walled summerwood fibers show much greater resistance to tear than those made from the upper logs of a single tree.

In addition to affecting the strength properties of a pulp, the morphology of the fibers appears to affect the bulk and surface characteristics of the sheet.

Springwood fibers being thin-walled collapse into flat ribbons and thereby produce a dense, closely knit, well-formed sheet of smooth surface. On the other hand, the thick-walled, needle-like fibers of summerwood do not collapse and therefore result in a bulky sheet of uneven formation and rougher surface characteristics. In Fig. 5 (left) strength data for pulp from rapid-growth wood of a loblolly pine of varying springwood content are plotted against pulp freeness as strength is developed in the test beater. Here again a relationship between the strength properties of the pulps and the springwood content of the raw material is illustrated.

To further show the relationship of springwood content and pulp strength, pulps of equal springwood content are grouped together irrespective of growth rate or species (Fig. 5, center). Comparing the strength properties of sulphate pulps of high springwood content (70 to 75 per cent) from rapid-growth loblolly with those from slow-growth shortleaf, it will be noticed that these two pulps, though prepared from different species of widely different growth rate are quite the same in physical characteristics. In the low springwood ratio class (44 to 50 per cent) four pulps (Fig. 5, right) made from the butt logs of each of the four species studied are identical as regards strength properties even though two were made from rapid and two from slow-growth material. The data recorded in these charts clearly indicate that there is a greater difference in the properties of pulps prepared from a single tree than there may be between different species of widely different growth rates provided the springwood content and the density are the same.

Since springwood-summerwood ratio in the raw material is a criterion in determining the physical characteristics of a pulp, the strength properties at any given degree of beating, for example, 550 cc. Schopper-Riegler freeness, have been plotted against this wood variable (percentage of springwood) to illustrate this relationship. In Fig. 6 the resulting curves show almost a linear relationship between springwood content and strength properties for rapid-growth loblolly and slow-growth longleaf pines. Fig.

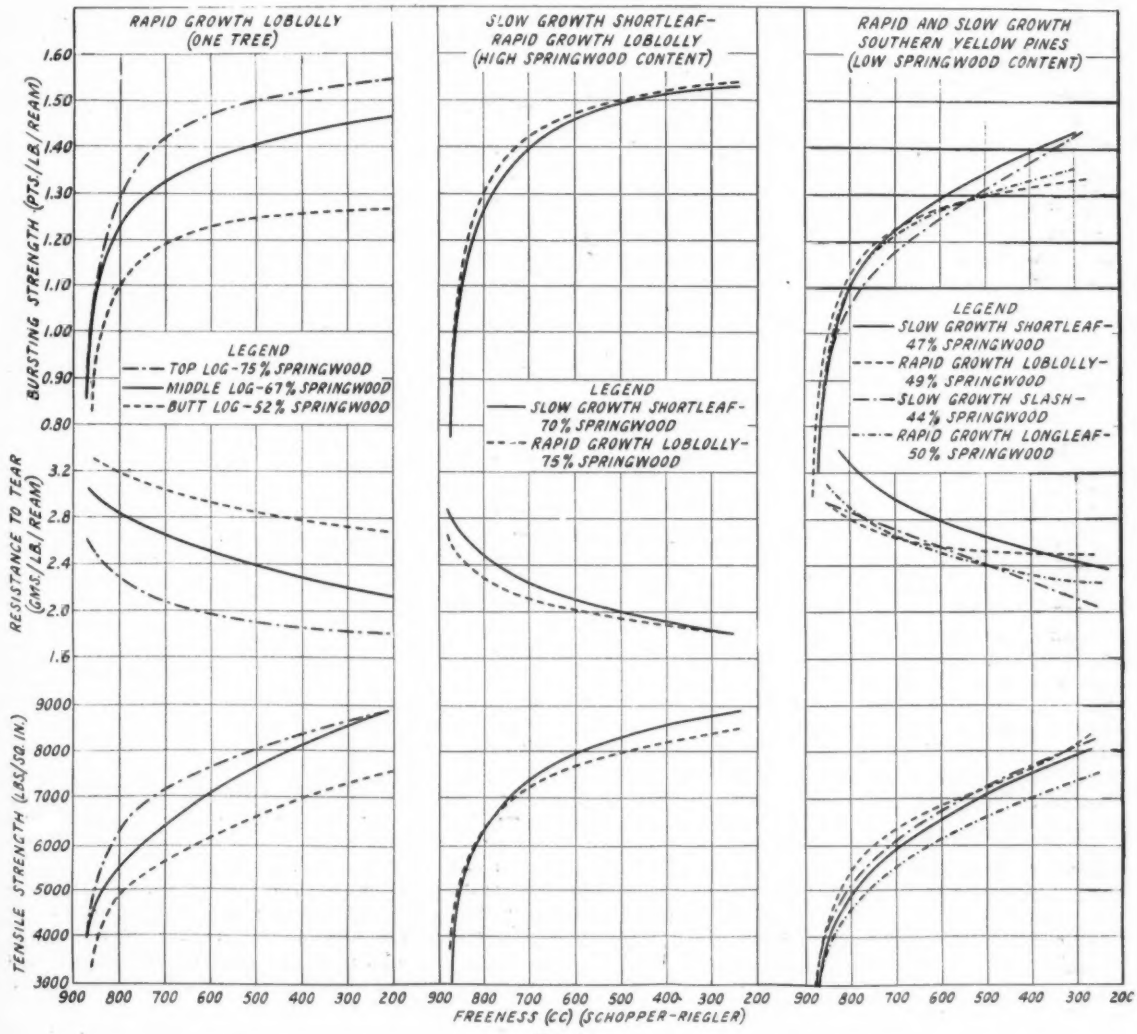

FIG. 5.

Effect of springwood—summerwood ratio on the strength properties of southern yellow pine sulphate pulps.

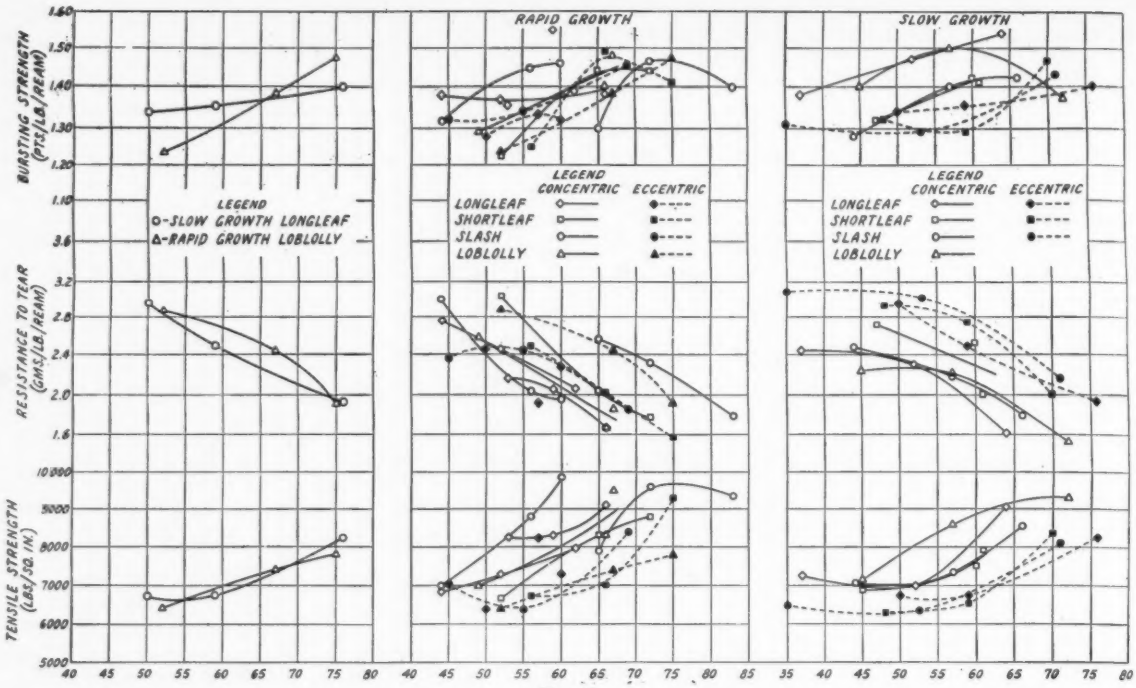

FIG. 6.
Effect of springwood content on the strength properties of southern yellow pine sulphate pulp at Schopper-Riegler freeness of 550 cc.

6 also shows for both rapid- and slow-growth material of all four species, longleaf, shortleaf, slash, and loblolly pines the relationship between springwood content and strength properties of the sulphate pulps obtained under identical cooking conditions. Examination of these curves shows that as springwood increases the bursting and tensile strengths of the pulps increase and the resistance to tear decreases. For the production, therefore, of pulps for the subsequent manufacture of printing and wrapping grades, where density, good formation, and smoothness of surface, accompanied by high bursting and tensile strengths are desirable, wood containing a relatively high percentage of springwood appears to be most satisfactory. On the other hand, for the production of bags, boards, and other coarse papers where resistance to tear, lightness, porosity, and bulk are desirable features, wood containing a high percentage of summerwood would probably be the most satisfactory. In any case, to obtain uniformity in the finished product, proper selection and segregation of the raw material is essential to the economic operation of a sulphate mill as is the proper control of the cooking conditions.

German Paper Industry Busy

The marked upward trend which has been reported in the paper industry in Germany is borne out by the annual reports of a number of leading paper manufacturing concerns whose fiscal years close during the first 6 months of the year, according to the American Consulate General at Frankfort-on-Main. The Ammendorfer Papierfabrik zu Ammendorf reports a keen demand for the company's products developed during the year. The initial improvement was in the domestic market but was soon followed by a rise in foreign orders which increased by 20 per cent. The company reports, however, that the raw material supply is causing growing concern. A growing scarcity of pulpwood is complained of by other companies, a number of which have turned to waste paper as a supply of raw material.

Prices obtained in the home market are considered unsatisfactory but cannot be raised owing to existing price regulations. The increases obtained in the sales to foreign markets were not sufficient to compensate for the rise in prices of raw materials and operation expenses.

Paper production during the first 6 months of the current year reached a total of 1,711,117 metric tons, an increase of 297,327 metric tons over the corresponding period in 1936. The largest increases occurred in the output of specialty papers and boards which were higher by 26 per cent and 18 per cent respectively. Writing and printing papers which make up nearly ⅓ of the total paper production, increased only 7 per cent and production of packing papers representing about ¼ of the total production increased 14 per cent.

Asten-Hill Cooperates With TAPPI

The Asten-Hill Manufacturing Company, Philadelphia, pioneer manufacturer of asbestos drier felts, did its share in promoting the very successful convention of the Technical Association of the Pulp and Paper Industry, held last month in Savannah, Georgia. The company contributed all the prizes which were distributed at the Crinoline party and the menus of the Crinoline party were printed on samples of Asten dryer felt.

The company also distributed newspapers at the rooms of the registered guests for the TAPPI convention.

Ohio TAPPI Discusses Color

Approximately one hundred members and friends of the Ohio Section of the Technical Association of the Pulp and Paper Industry and the Miami Valley Division of the American Pulp and Paper Mill Superintendents Association assembled for a joint dinner meeting at the Manchester Hotel in Middletown, Ohio, Saturday evening, November 6, 1937.

After a few introductory remarks, V. F. Waters, chairman of the Ohio Section of TAPPI, called upon Mr. J. R. Simpson, newly elected chairman of the Miami Valley Division of the Superintendents Association. Both chairmen are associated with the Champion Paper and Fibre Company, Hamilton, Ohio. Mr. Simpson extended a hearty welcome to all members of The Technical Association to attend any of their meetings during the coming year.

Chairman Waters introduced C. H. Pippert (Bull-Dog Charlie), of the Shartle Brothers Machine Company. Mr. Pippert was recently elected a member of the Middletown Commission, the governing body of Middletown, Ohio.

A. B. Curtis and his associates, A. A. Gaible, E. E. Scott Jr., and H. B. Bainbridge, representatives of Johns Manville, were then introduced and they proceeded with the program by presenting the talking motion picture entitled "Heat and Its Control."

Heat and Its Control

This picture presented a dramatic story of man's age-old struggle to control Nature's most powerful force, from the time man worshipped the sun as his only source of heat, through the development and manufacture of materials designed for heat conservation.

Actual laboratory demonstrations, animated drawings, and shadowgraphs were used in this picture to help visualize what heat is, to demonstrate molecular activity, and to illustrate heat transfer by radiation, convection, and conduction. Methods of development of new materials for heat conservation, methods of manufacture of insulation and the utilization of these materials were clearly pictured. The picture was very interesting throughout.

Chairman Waters next introduced Mr. K. Ivar Ekholm, National Aniline and Chemical Company, Inc., of New York and announced that Mr. Ekholm would lead a round table discussion on "Color Problems in the Paper Mills", to be held immediately in a smaller conference room in the hotel. Approximately 55 men migrated to the color discussion room.

Color Problems in the Paper Mill

A very lively discussion was held. No formal presentation of the subject was presented. Many of the chronic color problems were mentioned and discussed by a goodly number of the men present. Some of the more interesting problems discussed are: the effect of pH control on color, the pH range suitable for most colors, two-sidedness—its probable causes and some practical suggestions toward its elimination, color mottling, graniting of colors, surface coloring, fixing of colors on the fiber, effect of dryer temperatures on colors, color matching, daylight lamps, fadeometers, color specks, and many other of the well known "stickers" which are constantly confronting the color technician and playing a part in the coloring of paper and paper products.

Those in Attendance

Those present included:—

L. T. Murphy, Tennessee Paper Mills, Chattanooga, Tenn., Ed Geran and James Combie, Gardner Richardson Company, Middletown, Ohio; Walter C. Slattery, Sinclair Company, Middletown, Ohio; Myron Wittmer, Cheney Pulp and Paper Company, Franklin, Ohio; J. L. Mullin, Hopper Paper Company, Taylorville, Ill.; Frazee Bentley, The E. A. Kinsey Company, Dayton, Ohio; A. W. Henrick, Wrenn Paper Company, Middletown, Ohio; J. R. Simpson, Champion Paper and Fibre Company, Hamilton, Ohio; Chas. H. Pippert, Shartle Brothers Machine Company, Middletown, Ohio; K. Ivar Ekholm, National Aniline and Chemical Company, New York, N. Y.; A. B. Curtis, Johns Manville, Cincinnati, Ohio; John Ditmyer and Harry E. Hadley, Gardner Richardson Company, Middletown, Ohio; V. F. Waters and George Munro, Champion Paper and Fibre Company, Hamilton, Ohio; Fred B. Wells, Ohio Box Board Company, Rittman, Ohio; R. Tutt Jr., Peter Cooper Corp., Philadelphia, Pa.; Howard Stansell, West Carrollton Parchment Company, West Carrollton, Ohio; T. Donald Hamm, Container Corporation of America, Cincinnati, Ohio.

James B. Clarke, National Aniline and Chemical Company, Chicago, Ill.; Homer H. Loatimer, Champion Paper and Fibre Company, Hamilton, Ohio; K. P. Geohegan, The Aetna Paper Company, Dayton, Ohio; Harry C. Fisher and Stanley Trosset, Gardner Richardson Co., Lockland, Ohio; James F. Fielding, Chillicothe Paper Company, Chillicothe, Ohio; John E. Fielding, Continental Color Corporation, Cleveland, Ohio; E. C. Hendrickson, The Mead Corporation, Chillicothe, Ohio; Paul R. Schreiber, General Dyestuff Corporation, Chicago, Ill.; R. H. G. Smith, Sorg Paper Company, Middletown, Ohio; Thage Dahlgren and Richard Holmes, Gardner Richardson Company, Lockland, Ohio; J. A. Hoerner and N. L. Derby, Champion Paper and Fibre Company, Hamilton, Ohio; Claude A. Sorg, Sorg Paper Company, Middletown, Ohio; A. A. Gaible and E. E. Scott Jr., Johns Manville, Cincinnati, Ohio; Tom O'Flynn, Wardlow-Thomas Paper Company, Middletown, Ohio; Wm. Reigers and John Burnett, Beckett Paper Company, Hamilton, Ohio.

Thomas M. Burke, Container Corporation of America, Cincinnati, Ohio; Hal Harvey and O. R. Steffens, Penick & Ford, Ltd., New York, N. Y.; Chester N. Stupp, Oxford Miami Paper Company, West Carrollton, Ohio; Earl E. Stansell, Bishop-Stansell Company; K. L. Jackson and J. F. Rice, Champion Paper and Fibre Company, Hamilton, Ohio; H. B. Bainbridge, Johns Manville, Cincinnati, Ohio; Carl D. Roess, Wrenn Paper Company, Middletown, Ohio; B. C. Hopper, Hopper Paper Company, Taylorville, Ill.; Wm. W. Rettig and W. H. Boast, Gardner Richardson Company, Middletown, Ohio; M. A. Youtz, Drackett Company, Cincinnati, Ohio; C. L. McKasson and D. J. Kuebel, Champion Paper & Fibre Company, Hamilton, Ohio; H. H. Wessel, Manhattan Rubber Manufacturing

Company, Cincinnati, Ohio; Fred Holt Jr., Brown-Bridge Mills, Troy, Ohio; I. W. Johnston, The Dorr Company, Inc., Cincinnati, Ohio; S. R. Olsen and Rufus Barger, Champion Paper & Fibre Company, Hamilton, Ohio; Leo Fleischer, Crystal Tissue Company, Middletown, Ohio; Wm. C. Shapleigh Jr., Oxford Miami Paper Company, West Carrollton, Ohio; James Healy, American Rolling Mill Company, Middletown, Ohio.

D. D. Patrick, Cheney Pulp and Paper Company, Franklin, Ohio; Herbert L. Niehaus, Gardner Richardson Company; Lockland, Ohio; Edward Lum, Beckett Paper Company, Hamilton, Ohio; H. M. Morris, The Ohio Box Board Company, Rittman, Ohio; Donald C. Alexander, Container Corporation of America, Cincinnati, Ohio; T. M. Chemerys and R. J. Zeller, Champion Paper & Fibre Company, Hamilton, Ohio; O. P. Gephart, The Miamisburg Paper Company, Miamisburg, Ohio; Douglas Robbins, Douglas Robbins Sales Company, Middletown, Ohio; Harry Ross, Beveridge Paper Company, Indianapolis, Ind.; Floyd Nein, Bevis Machine Company, Middletown, Ohio; Robert R. Weber, Mathieson Alkali Works, Cincinnati, Ohio; A. G. Gibson and John Hamm, Shartle Brothers Machine Company, Middletown, Ohio; W. A. Oliver and C. R. Merriman, Gardner Richardson Company, Lockland, Ohio; Henry Waffenschmidt, National Aniline and Chemical Company, Cincinnati, Ohio; C. F. Nelson, The Miamisburg Paper Company, Miamisburg, Ohio; Val Friedrich, Beckett Paper Company, Hamilton, Ohio; S. V. Rogers and L. Hoskins, Gardner Richardson Company, Middletown, Ohio; Paul E. Howard, Bevis Machine Company, Middletown, Ohio; W. D. Boggess, Beveridge Paper Company, Indianapolis, Ind.

J. P. Broomhall, Champion Paper and Fibre Company, Hamilton, Ohio; C. J. McMahon, Appleton, Wis.; George H. Harvey, Gardner Richardson Company, Middletown, Ohio; Tom Bannister, Wrenn Paper Company, Middletown, Ohio; K. W. Osborne, Ohio Box Board Company, Rittman, Ohio; James H. Clynch, Container Corporation of America, Cincinnati, Ohio; J. H. Tate, Howard Paper Company, Dayton, Ohio.

TAPPI Notes

Warren Chilson, formerly of the Cellufoam Corporation, Chicago, is now with the Hooker Electrochemical Company, Niagara Falls, N. Y.

Norman Beveridge, formerly superintendent of Hummel-Ross Fibre Company is now general superintendent of the Kraft Corporation of America at Fernandina, Fla.

B. J. Russell, formerly chief chemist of the Southern Kraft Corporation, Panama City, Fla., is now with the Kraft Corporation, Fernandina.

S. R. Williamson, formerly of the Bogalusa Paper Company is now chief chemist of the Brunswick Pulp and Paper Company, Brunswick, Ga.

Dan B. Wicker, formerly of the Thilmany Pulp and Paper Company is a member of the staff of the North Carolina College of Agriculture and Engineering.

Anyone planning to attend the annual meeting of TAPPI at the Waldorf-Astoria in New York, Feb. 21-24, 1938, who may be interested in playing in a squash tournament should communicate with William A. Kelley, 2813 E. Belleview Place, Milwaukee, Wis.

F. E. Adams of the Advertising Department of the Mathieson Alkali Works, 60 East 42nd street, New York, would like to purchase a copy of Technical Association Papers for 1934 and 1936. Anyone having these copies available for sale should communicate with Mr. Adams.

Japan Imports Vancouver Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., November 6, 1937—Some months ago Japanese rayon interests acquired 500,000,000 feet of standing pulpwood on crown-granted lands on Vancouver Island, B. C., and at that time it was felt likely establishment of a pulp mill would follow. The Japanese owners have now decided to liquidate their holdings and export the raw logs to Japan. On ordinary lands this export in unmanufactured state would be barred by the B. C. Government, but the Provincial government has no power through usual channels in the case of crown-grant lands. At present some efforts are being made to determine some unusual method which can be used to compel the manufacture of the logs in British Columbia.

Meanwhile the Japanese owners have present specifications to establishing logging concerns in Vancouver asking for tenders for cutting the logs for export. Credit permits authorizing export of 60,000,000 feet annually to Japan are reported to have been secured by the owners from the Japanese government, but it is understood that in initial stages shipments will not exceed 30,000,000 feet per year. Only hemlock and balsam will be imported to Japan, cedar and other species in the stand being sold in B. C. on the open market. Logging firms are asked to bid on cutting on the basis of commencing operations about March 1.

Utilities Supplying Mills Report Profits

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 8, 1937 — Increased earnings are shown by two of the public utilities which serve Wisconsin paper mills. Wisconsin Public Service Corporation and subsidiary report gross operating revenue of $8,333,633 for the year ended August 31, 1937, compared with $7,745,845 for the year ended August 31, 1936. Net income after deduction for interest charges, amortization of debt, discount and expense and other income deductions amounted to $1,500,608, as compared with $947,787 for the previous year.

The Wisconsin Power and Light Company showed an increase in gross earnings of $463,701.76 for the year ended September 30, 1937. Net income was $1,106,548.88, slightly lower than the previous year because of higher labor, materials and supplies costs and higher taxes, amounting to an increase of more than $600,000. The company earned approximately a normal dividend, however.

Michigan Superintendents to Meet

KALAMAZOO, Mich., November 6, 1937 — The November meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Association will be held November 18. J. L. Kerr, district turbine specialist with the General Electric Company will be the speaker. His topic is "Recent Developments in Steam Electric Generation Plants".

Arundel Corp. Joins TAPPI

The Arundel Corporation of Baltimore, Md., has become a member of the Technical Association of the Pulp and Paper Industry. The Arundel Corporation was organized in 1919 by merging a number of associated companies. These companies, though related, specialized in various types of construction activity with the result that the amalgamation produced an organization capable of doing work of a diversified character. The head of the newly organized corporation was Frank A. Furst who remained in that position until his death on January 23, 1934.

The parent companies, established during the period from 1882 to 1915, successfully completed a number of large projects, the most outstanding of which are mentioned briefly below:—

The Cape Cod Canal was undertaken in 1909 and completed in 1914. This work had previously been unsuccessfully tried by a number of other organizations, over a period of years, and had been abandoned. The contract involved a $12,000,000.00 program which included the removal and disposal of 15,000,000 cubic yards of boulders and heavy sand.

In 1910 work was started on the contract for reclaiming the Everglades. This contract was supplemented by others over a period of about 20 years until approximately five hundred thousand acres of Florida swamp land were reclaimed at an expenditure of $16,000,000.00.

Aberdeen Proving Ground was constructed at Aberdeen, Md., as the Ordnance Testing Ground for the U. S. Army. This project required the construction of the 36,000 acre cantonment complete with roads, railroads, water supply system, sewage disposal system, power and heating plants. Buildings included the construction camp, barracks, and miscellaneous administration buildings. Work was started by one of the parent companies and completed by the Corporation in 1919. This contract totaled $10,500,000.00.

Drydock No. 3 of the League Island Navy Yard was undertaken prior to the consolidation and was completed in 1921. This contract amounting to $6,000,000.00 was completed under difficult construction conditions due to unsatisfactory water bearing soil.

Since its incorporation in 1919 The Arundel Corporation has done approximately $102,000,000.00 worth of contract work. Projects are too numerous to describe each in detail. The corporation has done many types of heavy construction work including, but not limited to the following: Airports, bridges, dredging, hydro-electric developments, dams, levees, railroad electrification, railroad construction, terminals, roads, sewers, tunnels, waterway improvements, and subaqueous rock excavation.

The water supply conduit for the City of Washington, D. C., was completed in 1925 at a total cost of $2,200,000.00. This contract provided a concrete conduit from the Great Falls of the Potomac River to Washington, D. C.

In 1928 the Conowingo Dam on the Susquehanna River in Maryland was completed at a cost of $8,000,000.00 The structure was 3,700 ft. in length and required the placing of 440,000 cu. yd. of concrete. The contract included all of the appurtenant structures, camp for construction forces, etc.

During the same period that Conowingo Dam was being constructed, the Corporation relocated 16 miles of the Columbia and Port Deposit Branch of the Pennsylvania R. R. in the vicinity of Conowingo Dam. This work included construction of a new roadbed, three large bridges, numerous large culverts, three tunnels, trackwork and miscellaneous structures. Upon completion in 1928 the work on this contract amounted to $6,500,000.00.

The Saluda Dam, near Columbia, S. C., was completed in 1930. This contract involved the construction of an earth fill dam 1½ miles long containing 11,000,000 cu. yd. of fill. The dam was the largest earth dam in the world at the time of its construction. Steel penstocks encased in concrete, a concrete arch tunnel, intake towers, and control equipment were a part of the contract which amounted to $5,800,000.00.

The Safe Harbor Hydro Electric Development at Safe Harbor, Pa., was completed in 1932 at a cost of $17,000,000.00. This project required the construction of a concrete dam, brick power house, permanent village for operating personnel, relocation of 9 miles of railroad, and all appurtenant work.

In 1934 the New Union Tunnel was completed at Baltimore, Md. for the Pennsylvania R. R. at a contract price of approximately $2,000,000.00. This tunnel is a double track railroad tunnel 3300 ft. long, 2000 ft. of which was constructed in soft ground by the use of a shield.

A contract amounting to $3,500,000.00 for the improvement of Livingstone Channel, Detroit River, was completed in 1936. This contract was unique in that large areas of the river were cofferdammed and the rock removed in the dry.

Contracts on hand at present amount to nearly $20,000,000.00. They include the Relocation of 123 track miles of the Wheeling & Lake Erie Railway in the vicinity of Dover, Ohio; electrification of approximately 400 track miles of the Pennsylvania R. R. in Pennsylvania; construction of an Airport at Baltimore, Md., requiring 3,600,000 cu. yds. of fill; elimination of a bend in the Harlem River, N. Y.; dredging in the Cape Cod Canal, Chesapeake & Delaware Canal, and New York Barge Canal. Subaqueous rock removal is being carried on in New York Harbor, and a dredging contract with the Fernandina Pulp and Paper Company is in progress.

The Arundel Corporation is available to the paper making industry as general contractor for plant construction, dock building, dredging, and other construction work. In the event it is necessary that planning and construction be carried on at the same time this Corporation has had much experience in cooperating with owners and engineers towards obtaining speedy and economical completion.

The Corporation is headed by Joseph V. Hogan, President; W. Bladen Lowndes, Vice President, and Richard A. Froehlinger, Secretary-Treasurer and will be represented in the Technical Association by Louis B. Wilcox, project manager.

Safety Carton Corp. Formed

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., November 8, 1937—Articles of incorporation have been filed with the Indiana secretary of state by the Safety Carton and Container Corporation, 1406 I street, Bedford, Ind., formed to manufacture paper containers and other paper products. The corporation has 1,000 shares of capital stock valued at $100 a share and the incorporators are R. J. Beaman, James E. Rocap and John T. Rocap.

Imports of Paper and Paper Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports, of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 6, 1937

SUMMARY

Cigarette Paper .....280 cs.
Wall Paper .....2 cs.
Wall Board .....220 bdls.
Paper Hangings .....8 bls., 1 cs.
Newsprint .....6,177 rolls
Bristol Boards .....3 cs.
Drawing Paper .....12 cs.
Filter Paper .....33 bls., 26 cs.
Filter Compound .....120 cs.
Filter Mass .....100 bls.
Basic Paper .....25 crates, 108 cs.
Surface Baryta Coated Paper .....143 crates, 9 cs.
Metal Coated Paper .....16 cs.
Transfer Paper .....12 cs.
Transfer Pictures .....13 cs.
Decalcomanias .....23 cs.
Decalcomania Paper .....2 cs., 58 drums (duplex)
Writing Paper .....7 cs.
Note Paper .....2 cs.
Miscellaneous Paper .....40 rolls, 150 bbls., 38 cs.

CIGARETTE PAPER

Champagne Paper Corp., *Lafayette,* Havre, 278 cs.
De Mauduit Paper Corp., *Lafayette,* Havre, 2 cs.

WALL PAPER

——, *Queen Mary,* Southampton, 2 cs.

WALL BOARD

——, *Bockenheim,* Wallvik, 185 bdls.
——, *Bockenheim,* Sundsvall, 35 bdls.

PAPER HANGINGS

W. H. S. Lloyd & Co., *American Trader,* London, 8 bls., 1 cs.

NEWSPRINT

Lunham & Reeve, Inc., *Scanmail,* Wiborg, 317 rolls.
H. G. Craig Co., *A. C. D.,* Donnacona, 301 rolls.
H. G. Craig Co., *Newscarrier,* Donnacona, 330 rolls.
H. G. Craig Co., *G. D. D.,* Donnacona, 321 rolls.
International Paper Co., *G. T. D.,* Gatineau, 319 rolls.
N. Y. Evening Journal, *Markland,* Liverpool, N. S., 630 rolls.
N. Y. Tribune, *Markland,* Liverpool, N. S., 2,006 rolls.
World Telegram, *Markland,* Liverpool, N. S., 604 rolls.
Brooklyn Daily Eagle, *Markland,* Liverpool, N. S., 147 rolls.
Westchester Newspapers, Inc., *Markland,* Liverpool, N. S., 50 rolls.
Parsons & Whittemore, Inc., *Markland,* Liverpool, N. S., 346 rolls.
Sharp Paper & Specialty Co. Inc., *Markland,* Liverpool, N. S., 193 rolls.
Jay Madden Corp., *Hamburg,* Hamburg, 264 rolls.
Jay Madden Corp., *Hamburg,* Bremen, 349 rolls.

BRISTOL BOARDS

Keuffel & Esser Co., *American Trader,* London, 3 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., *American Trader,* London, 12 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., *American Trader,* London, 11 cs.
H. Reeve Angel & Co. Inc., *Queen Mary,* Southampton, 10 cs., 33 bls.
H. Reeve Angel & Co. Inc., *Hamburg,* Hamburg, 5 cs.

FILTER COMPOUND

H. Reifenberg, *Hamburg,* Hamburg, 120 cs.

FILTER MASS

A. W. Fenton Co. Inc., *Hamburg,* Bremen, 100 bls.

BASIC PAPER

——, *Europa,* Bremen, 25 cs.
Dingelstedt & Co., *Hamburg,* Bremen, 16 cs.
Globe Shipping Co., *Hamburg,* Bremen, 51 cs., 25 crates.
Globe Shipping Co., *Hamburg,* Hamburg, 16 cs.

SURFACE BARYTA COATED PAPER

Globe Shipping Co., *Hamburg,* Bremen, 143 crates, 9 cs.

METAL COATED PAPER

K. Pauli & Co., *Hamburg,* Bremen, 16 cs.

TRANSFER PAPER

Fuchs & Lang Manufacturing Co., *Hamburg,* Hamburg, 12 cs.

TRANSFER PICTURES

Rohner Gehrig & Co., *Europa,* Bremen, 13 cs.

DECALCOMANIAS

Sellers Transportation Co., *Europa,* Bremen, 12 cs.
Sellers Transportation Co., *Hamburg,* Hamburg, 10 cs.
Masse & Co., *Hamburg,* Bremen, 1 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *American Shipper,* Liverpool, 2 cs., 58 drums, (duplex).

WRITING PAPER

Japan Paper Co., *American Trader,* London, 7 cs.

NOTE PAPER

H. Reeve Angel & Co. Inc., *American Trader,* London, 2 cs.

MISCELLANEOUS PAPER

Jay Madden Corp., *Argosy,* Kotka, 150 bbls.
Japan Paper Co., *Lafayette,* Havre, 11 cs.
Keuffel & Esser Co., *Hamburg,* Hamburg, 40 rolls, 27 cs.

RAGS, BAGGINGS, ETC.

Darmstadt, Scott & Courtney, *Scanmail,* Copenhagen, 102 bls. paper stock.
Loumar Textile By Products, *Scanmail,* Copenhagen, 190 bls. bagging.
W. Steck & Co., *Bajamar,* London, 107 bls. waste strings.
——, *Artigas,* Leith, 137 bls. bagging.
Manufacturers Trust Co., *Artigas,* Liverpool, 4 bls. rags.
Irving Trust Co., *Artigas,* Dundee, 74 bls. paper stock.
Hughes Fawcett, Inc., *Scythia,* Liverpool, 25 bls. flax waste.
S. Shapiro & Sons, Inc., *Volendam,* Rotterdam, 166 bls. bagging.
Loumar Textile By Products, *Volendam,* Rotterdam, 182 bls. bagging.
——, *Exiria,* Piraeus, 224 bls. paper stock.
F. Stern, *Black Eagle,* Rotterdam, 60 bls. bagging.
S. Shapiro & Sons, Inc., *Black Eagle,* Rotterdam, 233 bls. bagging.
E. J. Keller Co. Inc., *Black Eagle,* ——, 301 bls. bagging, 170 bls. rags.
Banco Coml. Italiane Trust Co., *Southern Cross,* Buenos Ayres, 232 bls. rags.
D. Benedetto, Inc., *Southern Cross,* Buenos Ayres, 38 bls. rags.
Burka Bagging Co., *Fort Townshend,* Halifax, 110 bls. bagging.
O'Brien Padawer Co., *Vinni,* Kobe, 200 bls. cotton waste.
D. S. Stern Corp., *Vinni,* Kobe, 100 bls. cotton waste.
Delia Waste Products Corp., *Vinni,* Kobe, 100 bls. rags.
——, *American Shipper,* Manchester, 10 bls. rags.
M. Snedeker Corp., *American Shipper,* Belfast, 87 bls. paper stock.
Chase National Bank, *Gerolstein,* Antwerp, 97 bls. jute cuttings.
E. J. Keller Co. Inc., *Gerolstein,* ——, 137 bls. bagging.

HIDE CUTTINGS

American Exp. Co., *Scythia,* Liverpool, 540 bags, 128 coils.

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OLD ROPE

——, *Artigas,* London, 57 coils, 4 bls.
Banco Coml. Italiane Trust Co., *American Trader,* London,
F. Stern, *Black Eagle,* Rotterdam, 49 coils.
Loumar Textile By Products, *Vinni,* Kobe, 120 bls. (waste).

CHINA CLAY

Paper Makers Importing Co., *Rigel,* Fowey, 1,496 tons, 18 cwt., in bulk.
J. W. Higman Co. Inc., *Rigel,* Fowey, 1,008 tons, 10 cwt., in bulk.
English China Clays Sales Corp., *Scythia,* Liverpool, 84 bags.

WOOD PULP BOARDS

Jay Madden Corp., *Scanmail,* Wiborg, 79 rolls.
Jay Madden Corp., *Argosy,* Wiborg, 73 bls.

WOOD PULP SHEETS

C. Bishop & Co., *Hamburg,* Hamburg, 30 bls.

WOOD PULP

Lagerloef Trading Co., *Scanmail,* Wiborg, 296 bls. sulphite, 50 tons.
Lagerloef Trading Co., *Argosy,* Kotka, 2,250 bls. mechanical ground, 1,450 tons.
Lagerloef Trading Co., *Argosy,* Helsingfors, 524 bls. sulphite, 104 tons.
Lagerloef Trading Co., *Argosy,* Helsingfors, 260 bls. mechanical ground, 52 tons.
Lagerloef Trading Co., *Argosy,* Wiborg, 1,270 bls. mechanical ground, 254 tons.
Lagerloef Trading Co., *Argosy,* Wiborg, 3,360 bls. sulphite, 622 tons.
Castle & Overton, Inc., *Argosy,* Wiborg, 3,113 bls. wood pulp, 618 tons.
Stora Kopparberg Corp., *Bockenheim,* Gefle, 970 bls. dry pulp.
Pagel Horton & Co. Inc., *Bockenheim,* Gefle, 1,665 bls. sulphate, 625 bls. sulphite.
——, *Bockenheim,* Gefle, 125 bls. sulphite.
Tradesmans National Bank Trust Co., *Bockenheim,* Gefle, 750 bls. sulphate.
Bulkley Dunton Pulp Co., *Bockenheim,* ——, 2,200 bls. sulphite.
Price & Pierce, Ltd., *Bockenheim,* Wallvik, 1,008 bls. sulphite.
Price & Pierce, Ltd., *Bockenheim,* Orviken, 750 bls. chemical pulp, 125 tons.
Price & Pierce, Ltd., *Bockenheim,* Hernosand, 1,200 bls. sulphite.
Bank of N. Y. Trust Co., *Bockenheim,* Hernosand, 900 bls. sulphite.
Bank of The Manhattan Co., *Bockenheim,* Hernosand, 1,050 bls. sulphite.
——, *Bockenheim,* Hernosand, 600 bls. sulphite.
National City Bank, *Bockenheim,* Hernosand, 300 bls. sulphite.
Perkins Goodwin & Co., *Bockenheim,* Sundsvall, 660 bls. sulphite, 110 tons.
Gottesman & Co. Inc., *Bockenheim,* Sundsvall, 2,280 bls. sulphite, 3,600 bls. sulphate.
Castle & Overton, Inc., *Hamburg,* Hamburg, 800 bls. wood pulp, 160 tons.

NEWARK IMPORTS

WEEK ENDING NOVEMBER 6, 1937

H. G. Craig Co., *Donpaco,* Donnacona, 308 rolls newsprint.

PORTLAND IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Pagel Horton & Co. Inc., *Milos,* Sweden, 6,168 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Gottesman & Co. Inc., *Heddernheim,* Sweden, 1,250 bls. sulphite.
Pagel Horton & Co. Inc., *Heddernheim,* Sweden, 1,817 bls. wood pulp.
Price & Pierce, Ltd., *Heddernheim,* ——, 4,230 bls. unbleached sulphite.
Price & Pierce, Ltd., *Heddernheim,* ——, 1,800 bls. unbleached sulphite.
Price & Pierce, Ltd., *Heddernheim,* ——, 250 bls. unbleached mechanical.

TRENTON IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Paper Makers Importing Co., *Rigel,* Fowey, 1,022 tons, 16 cwt., china clay in bulk.
J. W. Higman Co. Inc., *Rigel,* Fowey, 559 tons, 12 cwt., china clay in bulk.
J. W. Higman Co. Inc., *Rigel,* Fowey, 1,568 bags china clay, 35 tons, 14 cwt.
J. W. Higman Co. Inc., *Rigel,* Fowey, 60 casks china clay, 30 tons.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Castle & Overton, Inc., *Artigas,* Hamburg, 3,575 bls. wood pulp, 695 tons.
Central Hanover Bank Trust Co., *Artigas,* Hamburg, 1,283 bls. wood pulp.
J. Wallworth & Sons, *Artigas,* Dundee, 26 bls. paper stock.
——, *Artigas,* Hamburg, 261 bls. rags.
E. J. Keller Co. Inc., *Artigas,* ——, 67 bls. rags.
——, *Artigas,* Hamburg, 836 bls. wood pulp, 125 tons.
Stora Kopparberg Corp., *Bockenheim,* Gefle, 270 bls. dry pulp.
Price & Pierce, Ltd., *Bockenheim,* Wallvik, 288 bls. sulphite.
——, *Bockenheim,* Iggesund, 750 bls. sulphite, 2,875 bls. sulphate.
Bankers Trust Co., *Bockenheim,* Iggesund, 500 bls. sulphate.
——, *Bockenheim,* Iggesund, 500 bls. sulphite.
Johaneson Wales & Sparre, Inc., *Bockenheim,* Sundsvall, 525 bls. sulphite.
Mead Sales Co. Inc., *Bockenheim,* Sundsvall, 900 bls. sulphite.
Gottesman & Co. Inc., *Bockenheim,* Sundsvall, 1,050 bls. sulphite.
Bank of The Manhattan Co., *Bockenheim,* Hernosand, 4,283 bls. sulphite.
——, *Bockenheim,* Hernosand, 600 bls. kraft pulp.
Bank of N. Y. Trust Co., *Bockenheim,* Hernosand, 1,200 bls. sulphite.
——, *Bockenheim,* Hernosand, 1,200 bls. sulphite, 1,500 bls. sulphate.
——, *Vinni,* Kobe, 124 bls. rags.
E. J. Keller Co. Inc., *Trongate,* ——, 56 bls. rags.

WILMINGTON IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Price & Pierce, Ltd., *Bockenheim,* Wallvik, 3,888 bls. sulphite.
Price & Pierce, Ltd., *Bockenheim,* Orviken, 3,000 bls. chemical pulp, 500 tons.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Castle & Overton, Inc., *Black Eagle,* Rotterdam, 614 bls. wood pulp, 104 tons.
Congoleum Nairn Co., *Black Eagle,* Antwerp, 435 bls. rags.
S. Shapiro & Sons, Inc., *Black Eagle,* Antwerp, 59 bls. bagging.
Pagel Horton & Co. Inc., *Ginnheim,* Sweden, 4,380 bls. wood pulp.

GALVESTON IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Burka Bagging Co., *Vinni,* Kobe, 590 bls. bagging.
——, *Vinni,* Kobe, 40 bls. rags.

MONTREAL IMPORTS

WEEK ENDING NOVEMBER 6, 1937

Pagel Horton & Co. Inc., *Vasaholm,* Sweden, 23,000 bls. wood pulp.
Pagel Horton & Co. Inc., *Sandhamn,* Sweden, 32,572 bls. wood pulp.

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 10, 1937.

The wholesale paper markets in general report a slight decline in sales volume for the current week. Consumer demand in the paper market, as in other markets, has been slowly declining for several weeks. Although the opinion is commonly held in the paper trade that jobbers' and retailers' stocks are now reduced to so low a point that buying in fair volume should be expected soon, business continues to a large extent on a hand-to-mouth basis. Prices on all grades of paper continue firm. Some business has been recently reported at less than spot market prices, but as sales were made at less than contract market prices, these transactions had no affect on the wholesale market.

Newsprint continues active with contract shipments going forward in normal volume.

The fine paper market reports demand as somewhat less for the week. Book papers are about on the level of the preceding week. The tissue paper market reports demand as relatively slow, with no change in the less than seasonal volume in sales.

The kraft paper market reports demand as relatively light, though more inquiries received this week indicate an improved demand in the future. Prices of all kraft papers hold firm.

Chemical Pulp

The chemical pulp market reports that the trend in demand and prices of all grades of pulp is downward. The market is comparatively quiet, with prices at about level of the preceding week.

Mechanical Pulp

The demand for mechanical pulp is relatively light. Prices continue to hold firm, though slightly lower quotations are expected if demand continues to fall off.

Old Rope and Bagging

The old rope market is very quiet. Prices of old rope have declined about $5 per ton during the current week. The domestic bagging market is quiet, with prices off about $2 per ton for the week.

Rags

The domestic rag market reports conditions as quiet. Prices of domestic new and old rags have declined during the week. The foreign rag market is inactive and nominal prices prevail.

Waste Paper

The demand for all grades of waste paper continues very light. The higher grades, of which prices have been firm for some time, have declined during the current week, and a reduction of prices of all grades of waste paper is reported for the week.

Twines

The demand for twines continues light and the market is relatively quiet. Prices of all grades of soft and hard fiber twines are lower for the week, with the exception of manila, the price of which remains unchanged.

Wall Board Firms Get Desist Orders

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 10, 1937.—Three companies manufacturing wall board and wall covering products have been served by the Federal Trade Commission with orders requiring them to cease and desist from certain misleading representations in the sale of their products. These respondents are the Masonite Corporation, Chicago and Laurel, Miss., Standard Wall Covering Company, Inc., 1819 North 9th street, Philadelphia, and The Marsh Lumber Company, 535-611 Tuscarawas avenue, Dover, Ohio, trading as Marsh Wall Tile Company.

The orders direct the respondents to cease using their respective trade names containing the word "tile", or the word "tile" itself, to represent that their products are that material, unless in immediate conjunction with such words and in the same conspicuous type there appear other words designating the material of which the products are made, such as wool tile, glass tile, rubber tile, asbestos tile, copper tile, cork tile or metal tile.

The Masonite Corporation's "Temprtile", according to findings, is compounded from wood chips and wood fibers and other substances and siccative materials, and are baked in an oven at a high temperature, pressed and tempered, so that the final product is a hard, durable sheeting or covering.

Standard Wall Covering Company's "Stancotile", "Mono-Tile" and "Wall Tile" are made in the same way, according to findings, as are the Marsh Lumber Company's "Marshtile" and "Marsh Wall Tile."

Many experts, including prominent architects, tile manufacturers, tile contractors, tile jobbers, professors of ceramics and engineers and contractors, testified, and the Commission found it to be a fact, that the word "tile" when standing alone, means or connotes a baked clay or ceramic product, and that by use of the word "tile" alone a ceramic tile is meant. Use of the respondents' designations of their wood fiber products was found to have had a tendency to deceive buyers into believing that their various products were manufactured from baked clay, and to tend to divert trade from competitors who sold tile products actually manufactured from such clay.

The Standard Wall and Marsh companies were also directed to cease using the word "marble" in certain trade names to represent that the products so designated were marble, when such was not a fact. The Marsh company, according to findings, sold a product designated "Marsh Marble", and Standard Wall Covering Company sold "Mono-Marble."

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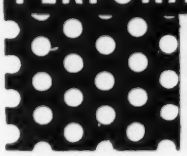

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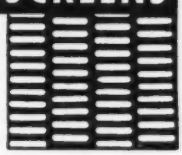

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THE PAPER TRADE JOURNAL

15 WEST 47th ST. NEW YORK

Miscellaneous Markets

Office of thee PAPER TRADE JOURNAL,
Wednesday, November 10, 1937.

BLANC FIXE—The demand for blanc fixe is steady. Prices continue firm and conform to the quotations of the preceding week. The pulp is quoted at from $42.50 to $45 per ton, in bulk; the powder at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—The bleaching powder market is steady. Prices are unchanged. Bleaching powder is offered at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The demand for casein continues fair. Prices are firm. Domestic standard ground casein is quoted at 13 cents per pound; domestic finely ground casein at 14 cents per pound; all in bags, car load quantities.

CAUSTIC SODA—The caustic soda market continues steady. Prices are firm. Solid caustic soda is quoted at from $2.10 to $2.30 per 100 pounds; flake and ground at from $2.50 to $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—The china clay market is steady. Imported clay is quoted at from $14.50 to $25 per ton, ship side. Domestic filler clay is offered at from $6.50 to $12 per ton; coating clay at from $11 to $22 per ton, at mines.

CHLORINE—The chlorine market continues on the level of the preceding week. Prices are firm. Chlorine is quoted at $2.15 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market reports prices as higher for the current week. Paper making rosin is quoted at $7; wood rosin at $7.05 per 280 pounds, gross weight, in barrels at Savannah. Seventy per cent rosin size is quoted at $3.35 per 100 pounds, in tank cars, f.o.b., shipping point.

SALT CAKE—The salt cake market is steady. Prices are firm. Quotations range at from $12 to $13.50 per ton; chrome salt cake at from $11 to $12, f.o.b., shipping point. Imported salt cake is offered at from $14.50 to $15 per ton, Gulf or Atlantic Seaboard, on dock.

SODA ASH—The demand for soda ash continues steady. Prices are firm. Quotations on soda ash in car lots, at works, per 100 pounds, are as follows: in bulk, $.90; in bags, $1.05; and in barrels, $1.35.

STARCH—The starch market reports prices as lower for the current week. Globe pearl is offered at $2.95 per 100 pounds, in bags, and at $3.20 in barrels. Special paper starch is quoted at $3.05 per 100 pounds, in bags, and at $3.50 in barrels. All prices in car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—The demand for sulphate of alumina is steady. Prices are firm. The commercial grades are quoted at from $1.25 to $1.60; iron free at from $2 to $2.25 per 100 pounds, in barrels, at works.

SULPHUR—The sulphur market is steady. Prices are firm. Annual contracts are quoted at $18 per long ton, car lots, f.o.b., cars at mines. Spot and nearby car lots are offered at $21 per ton.

TALC—The demand for talc is about on the level of the preceding week. Prices are firm. Domestic talc is quoted at from $15 to $18 per ton, Eastern mines. Imported talc is quoted at from $25 to $40 per ton, on dock.

Boiler Water Analyses

The Allis-Chalmers Manufacturing Company, Milwaukee, Wis., has just issued a new booklet number 5102 called "Boiler Water Analyses" giving all the latest standard methods of making boiler water determinations. This booklet will be of interest to anyone making boiler water tests.

Market Quotations

Paper

Tissues—Per Ream—

White No. 1	1.10	@	—
White No. 1 M. G.	1.07½	@	—
White No. 1½	.77½	@	—
White No. 2	.75	@	—
Anti-Tarnish M. G.	.77½	@	—
Colored	.90	@	—
Kraft	.77½	@	—
Manila	.75	@	—
Unbleached Toilet	2.90	@	3.30
Bleached Toilet	3.94	@	5.26

Paper Towels—

Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70

Manila—

No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00

Fibre Papers—

No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—

Roll, contract	42.50	@	—
Sheets	47.50	@	—

Kraft—

No. 1 Northern	5.25	@	5.75
Standard	5.00	@	—
Southern	4.50	@	—
Machine glazed, plain, striped	5.00	@	—

Boards, per ton—

News	37.50	@40.00
Chip	35.00	@37.50
Sgl. Mla. Ll. Chip	52.50	@ —
Jute Lined Chip	52.50	@ —
White Pat. Coated	65.00	@67.50
Kraft Liners	55.00	@ —
Binders Boards	75.00	@80.00

The following are representative of distributors' resale prices:—

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1.	$41.40@$48.50	$42.55@$50.00
100% Rag	32.80@ 38.50	33.95@ 39.75
85% Rag	.....	32.20@ 37.75
75% Rag	24.75@ 29.00	25.90@ 30.50
65% Rag	21.65@ 26.25	22.80@ 27.75
50% Rag	18.70@ 22.75	19.90@ 24.25
25% Rag	15.80@ 19.25	16.95@ 20.75

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra

Sulphite Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$9.35@$11.50	$10.55@$12.75
No. 2	8.50@ 10.25	9.65@ 11.75
No. 4	7.60@ 9.25	8.80@ 10.75

Regular Colors @ $1.50 cwt. extra.
Heavy Colors @ $3.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,
Delivered in Zone 1:

No. 1 Glossy Coated	$12.15@$14.25
No. 2 Glossy Coated	10.55@ 12.25
No. 3 Glossy Coated	9.35@ 11.00
No. 4 Glossy Coated	8.80@ 10.50
No. 1 Antique (water-marked)	8.80@ 10.50
No. 2 Offset	8.05@ 9.50
A Grade E. F.	7.90@ 9.50
A Grade S. & S. C.	8.15@ 9.75
B Grade E. F.	7.30@ 8.75
B Grade S. & S. C.	7.55@ 9.00
C Grade E. F.	7.00@ 8.50
C Grade S. & S. C.	7.25@ 8.75
D Grade E. F.	6.75@ 8.25
D Grade S. & S. C.	7.00@ 8.50

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—

Moist	35.00	@	36.00
Dry	40.00	@	42.00

(Delivered)

No. 1 Domestic and Canadian	36.00	@	37.50

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—

Prime Bleached Sulphite	3.50	@	4.65
Prime Qualities—Easy-Bleaching Sulphite	3.25	@	3.75
Strong Unbleached Sulphite	2.75	@	3.65

(On Dock, Atlantic Ports)

Kraft Bleached	4.00	@	4.75
Kraft Light & Strong	3.00	@	3.75
Kraft No. 1	2.75	@	2.65
Kraft No. 2	2.50	@	2.75

(F.o.b. Pulp Mill)

Kraft Domestic	2.00	@	2.75

(Delivered)

Soda Bleached	3.25	@	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—New White, No. 1	7.34	@	8.00
Silesias, No. 1	6.25	@	6.50
New Unbleached	8.75	@	9.00
Blue Overall	6.25	@	6.50
Fancy	3.25	@	3.50
Washables	2.25	@	2.50
Mixed Khaki Cuttings	4.00	@	4.25
O. D. Khaki Cuttings	4.50	@	4.35

Old Rags

White, No. 1—Repacked	3.75	@	4.00
Miscellaneous	3.00	@	3.25
White, No. 2—Repacked	2.50	@	2.75
Miscellaneous	2.00	@	2.25
Thirds and Blues—Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Roofing Rags—No. 1	1.30	@	1.40
No. 2	.80	@	.90
No. 3 (bagging)	.70	@	.80
No. 4	.70	@	.80
No. 5A	.65	@	.70

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.25
New Light Oxford	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.50
No. 2 White Linens	6.50	@	7.50
No. 3 White Linens	4.50	@	5.50

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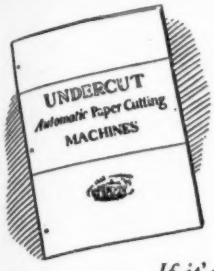

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about "Buffalo"

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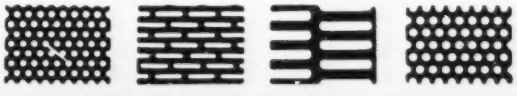

The Harrington & King PERFORATING Co.
5652 FILLMORE ST., CHICAGO, ILL. 114 LIBERTY ST., NEW YORK, N.Y.

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	@	4.75
No. 2 White Cotton.	3.25	@	3.75
No. 3 White Cotton.	2.50	@	3.00
No. 4 White Cotton.	1.90	@	2.20
Extra Light Prints..	2.00	@	2.40
Ord. Light Prints...	1.75	@	2.15
Med. Light Prints...	1.55	@	1.95
Dutch Blue Cottons..	2.25	@	2.50
French Blue Linens..	3.00	@	—
Checks and Blues...	2.00	@	—
Linsey Garments....	2.10	@	2.20
Dark Cottons.....	1.75	@	1.85
Old Shopperies.....	1.60	@	—
New Shopperies.....	1.60	@	—
French Blues.....	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.25	@	2.50
Domestic	2.15	@	2.35
Wool Tares, light....	1.50	@	1.75
Wool Tares, heavy..	2.00	@	2.10
Bright Bagging.....	1.60	@	1.70
Manila Rope—			
Foreign	3.25	@	3.50
Domestic	3.50	@	3.75
Jute Threads.....	2.75	@	3.00
Sisal Strings.....	2.35	@	2.45
Mixed Strings.....	Nominal		

Old Waste Papers

(F. o. b. New York)

Shavings—			
No. 1 Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1....	2.45	@	2.55
Hard White No. 2.	2.25	@	2.35
Soft White No. 1..	2.25	@	2.35
Flat Stock—			
Stitchless	.75	@	.85
Overissue Mag.....	.75	@	.85
Solid Flat Book...	.60	@	.65
Crumbled No. 1...	.45	@	.55
Ledger Stock.....	1.10	@	1.20
New B. B. Chips....	.30	@	.35
Manila—			
New Env. Cut.....	2.00	@	2.15
New Cuttings.....	1.50	@	1.60
Old Kraft Machine— Compressed bales..	.75	@	.85
News—			
No. 1 White News	1.25	@	1.35
Strictly Overissue.	.50	@	.60
Strictly Folded....	.30	@	.35
No. 1 Mixed Paper..	.20	@	.26

Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—			
India	.15	@	.16½
White Hemp.....	.16	@	.17½
Fine Polished—			
Fine India.....	.20	@	.22
Unpolished—			
Box	.11	@	.11½
Paper Makers.....	.11	@	.12¾
Tube Rope	.11½	@	.14¼
Wall Paper	.12½	@	.13¾
Wrapping	.14	@	.14½
Soft Fiber Rope...	.13¾	@	.14¼

(Hard Fibre)

Medium Java.....	.12	@	.12½
Mex. Sisal.....	.11	@	.11½
Manila	.21	@	.28

Domestic	2.50	@	3.00
Transmission Rope..	1.90	@	2.00
Soft Jute Ropes.....	2.25	@	2.35
Jute Carpet Threads.	1.75	@	2.00
Gunny No. 1—			
Foreign	2.35	@	2.40
Domestic	2.00	@	2.10
Bleachery Burlap....	4.00	@	4.10
Scrap Burlap—			
Foreign	2.15	@	2.35
Domestic	1.75	@	1.90
Scrap Sisal.....	1.90	@	2.10
Scrap Sisal for Shredding	2.40	@	2.60
Wool Tares, heavy...	—	@	2.15
New Burlap Cuttings	2.45	@	3.00
Aust. Wool Pouches.	3.50	@	3.65
Heavy baling bagging	2.25	@	2.35
Paper Mill Bagging.	1.50	@	1.60
Bagging No. 2.....	.85	@	1.00

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	.03	@	.03¼
New White No. 1.	.07½	@	.07¾
New White No. 2.	.05½	@	.05¾
New Light Flannelettes	—	@	.06
Silesias No. 1.....	.03¾	@	.04
New Black Silesias .	.03¾	@	.04
Silesias No. 1			
Soft Unbleached.....	.08	@	.08¼
Blue Cheviot.....	.06¼	@	.07
Fancy	.03¼	@	.03½
Washable	.03	@	.03¼

Cottons—According to grades—			
Blue Overalls.....	.06½	@	.06¾
New Black, soft...	.03¾	@	.04
Khaki Cuttings.....	.03½	@	.04
O. D. Khaki.....	.04	@	.04½
Corduroy	.02¾	@	.03
New Canvas.....	.07¼	@	.07½
B. V. D. Cuttings.	.08¼	@	.08½

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.71
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues.....	1.75	@	2.00
Third and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings.....	3.90	@	4.00
Roofing Stock—			
No. 1.....	1.20	@	1.25
No. 2.....	1.00	@	1.05
No. 3.....	.90	@	.95

Foreign Rags

(F. o. b. Boston)

Dark Cottons.....	1.40	@	1.50
Dutch Blues.....	2.85	@	3.00
New Checks and Blues	2.85	@	3.00
Old Fustians.....	2.50	@	2.60
Old Linsey Garments	1.90	@	2.00
New Silesias.....	6.00	@	6.50

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.07½	@	.08
New White, No. 2.	.04½	@	.05
Light Silesias.....	.05½	@	—
Silesias, No. 1....	—	@	.05½
Black Silesias, soft.	.03	@	.03½
New Unbleached..	.07½	@	.08
Washable, No. 1..	.02	@	.02½
Blue Overall.....	.04	@	.04½
Cottons According to grades—			
Washable, No. 2..	.01½	@	.01¾
New Blue.....	.01½	@	.01¾
Fancy Percales....	—	@	.03½
New Black Soft...	.03	@	.03½
New Light Seconds	—	@	.05½
New Dark Seconds	1.25	@	1.50
Khaki Cuttings—			
No. 1 O. D.....	.03½	@	.04
No. 2 Mixed.....	—	@	.02¾
Corduroy	.02¾	@	.03
New Canvas.....	.06	@	.06½
New Black Mixed.	.02	@	.02¾

Domestic Rags (Old)

White No. 1—			
Repacked	3.50	@	3.75
Miscellaneous	3.00	@	3.25
Twos and Blues—			
Miscellaneous	—	@	1.75
Repacked	2.00	@	2.25
Black Stockings (Export)	4.00	@	4.50
Roofing Stock—			
Foreign No. 1....	1.50	@	1.75
Domestic No. 1...	—	@	1.25
Domestic No. 2...	1.00	@	1.10
Roofing Bagging .	.80	@	.90

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	—
Domestic	1.70	@	1.75
Manila Rope.....	3.00	@	3.25
Sisal Rope.....	2.00	@	2.25
Mixed Rope	1.00	@	1.10
Scrap—			
No. 1.....	1.50	@	—
No. 2.....	1.00	@	1.25
Wool Tares, heavy..	3.25	@	3.50
Mixed Strings.....	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.55	@	2.75
No. 2 Hard White.	2.40	@	2.55
No. 1 Soft White..	2.25	@	2.30
No. 2 Soft White..	1.50	@	1.75
No. 1 Mixed.....	.80	@	.90
Solid Ledger Stock..	1.75	@	1.85
Ledger Stock, white.	1.50	@	1.60
Ledger Stock, colored	1.35	@	1.45
No. 1 Books, heavy..	1.05	@	1.10
Manila Cuttings.....	1.75	@	1.85
Print Manila.....	.50	@	.55
Container Manila....	.45	@	.50
Kraft Paper.....	1.15	@	1.20
No. 1 Mixed Paper..	.35	@	.45
Straw Board Chip...	.40	@	.45
Binders Board Chip.	.40	@	.45
Corrugated Board...	.50	@	.55
Overissue News.....	.60	@	.65
Old Newspapers	.40	@	.45

BOSTON

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White.	2.25	@	2.40
No. 1 Soft White..	1.85	@	2.15
No. 2 Mixed.....	.75	@	.80
Solid Ledger Books..	1.50	@	1.75
Overissue Ledger Stock	1.30	@	1.50
Mixed Ledgers.....	.85	@	.90
No. 1 Books, heavy..	.90	@	1.00
No. 1 Books, light...	.65	@	.75
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.60	@	1.70
Manila Env. Cuttings, extra quality.....	2.20	@	2.30
No. 1 Old Manila...	.95	@	1.00
White Blank News..	1.30	@	1.40
No. 1 Kraft.....	1.20	@	1.30
Mixed Papers.....	.25	@	.30
Print Manila.....	.50	@	.55
Container Manilas...	.27½	@	—
Old Newspapers.....	.25	@	.30
Paper Wool Strings.	—	@	.60
Overissue News.....	.45	@	.50
Box Board Chips....	.35	@	.40
Corrugated Boxes...	.25	@	.35
Kraft corrugated boxes	—	@	1.00
Screening Wrappers.	.55	@	.60

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	—	@	3.50

CHICAGO

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings....	3.15	@	3.25
No. 1 Hard White.	2.50	@	2.60
No. 1 Soft White..	2.05	@	2.10
Ledger & Writings..	1.30	@	1.40
Solid Books.....	1.20	@	1.25
Blanks	1.40	@	1.50
Krafts	.90	@	1.00
New Kraft Cuts.....	1.70	@	1.80
Manila Env. Cuts...	2.15	@	2.25
Ex. No. 1 Manila...	2.15	@	2.25
Print Manila.....	1.70	@	1.75
Overissue News.....	.60	@	.70
Old Newspapers—			
No. 1 Folded News	.45	@	.50
No. 1 Mixed Paper	.35	@	.40
Roofing Stocks—			
No. 1.....	2.00	@	2.25
No. 2.....	1.85	@	2.00

TORONTO

Paper

Bonds and Ledgers

Delivered

No. 1 White	.35½	@	.36½
No. 1 Tints	.36½	@	.37½
No. 2 White	.26½	@	—
No. 2 Tints	.27½	@	—
No. 4 White	—	@	.1550
No. 4 Tints	.16	@	.1650
No. 5 Bond—White .	11.35	@	—
No. 5 Bond—Tints .	12.35	@	—
No. 5 Bond—Golden Rod	13.35	@	—
No. 5 Ledger—White	.1185	@	—
No. 5 Ledger—Tints.	.1285	@	—
No. 6 Bond—White .	10.75	@	—
No. 6 Bond—Tints .	11.25	@	—
No. 6 Bond—Golden Rod	12.75	@	—
No. 7 Bond—White .	9.10	@	—
No. 7 Bond—Tints .	9.60	@	—
No. 7 Bond—Golden Rod	11.10	@	—
Book—			
No. 1 M. F.	7.10	@	7.35
No. 2 M. F.	6.85	@	7.20
No. 3 M. F.	5.60	@	6.20
No. 1 S. C.	7.60	@	7.85
No. 2 S. C.	7.10	@	7.35
No. 3 S. C.	6.10	@	6.35
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.00	@	—
No. 3 Coated and Litho	9.50	@	10.00
Coated tinted.....	13.00	@	13.50
Wrapping—delivered—			
Rag Brown.....	4.85	@	5.55
White Wrap.....	4.00	@	—
"B" Manila.....	4.90	@	6.25
No. 1 Manila.....	5.50	@	7.00
Fiber	5.50	@	—
Kraft, No. 2.....	5.50	@	—

(F. o. b. Cars, Toronto)

News, per ton—			
Rolls (contract)...	38.50	@	—
Sheets	45.50	@	—

Pulp

Ground wood.....	32.00	@	—
Unbleached Sulphite.	59.00	@	—
Book (Class 1).....	71.00	@	—
Writing (Class 2)..	72.00	@	—
Select (Class 3).....	73.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut...	2.50	@	—
Soft White.....	2.15	@	—
White Blk. News..	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.00	@	—
Light and Crumpled Book Stock.	.85	@	—
Ledgers and Writings	1.20	@	—
Manilas—			
New Manila Cut...	1.50	@	—
Printed Manilas...	.65	@	—
Kraft	1.00	@	1.70
News and Scrap—			
Strictly Overissue.	.65	@	—
Strictly Folded....	.60	@	—
No. 1 Mixed Paper..	.50	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09	@	.09½
Fancy Shirt Cuttings	.03½	@	.03¾